

A COMPARATIVE STUDY OF THE PRODUCTIVITY  
AND EFFICIENCY OF HIGH AND  
LOW ACHIEVERS AS RE-  
LATED TO THEIR SOCIAL ACTIVITIES.

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M. I. E.  
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( HAR GOVIND GUPTA )



T O

My Most Reverred Teachers,

In respect for all I have learnt at their feet,

.....

AND

.....

TO

MY STUDENTS

IN PLEASURE WHAT THEY HAVE LEARNED  
IN PRIDE WHAT THEY HAVE TAUGHT .

— HAR GOVIND GUPTA .



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# CHAPTER I

## INTRODUCTION





## THE PROBLEM AND ITS SETTING:

" Whenever one is unable to achieve, or continue in, a condition of friendly relations with the environment, he must perforce pay attention to his own shortcomings, and thereby become acutely aware of the incompatibility between himself and the physical and the social world outside, and of his isolation".(21,p.14). ✓

A pupil's low scholastic achievement, when viewed from this viewpoint, indicates his poor adjustment in the school environment. Although intellectual ability considerably affects a pupil's academic achievement, yet research studies show that many students with intelligence, considered sufficient for academic success have failed or have achieved at a level below their ability (6, p.187). This indicates that factors other than intellectual ones operate in one's scholastic achievement; and personality may be one of them (34,p.182). Significant differences, it has been found, exist between high and low achievers in respect of psychological factors like social adjustment, self-concept, and the like (10,pp.110-111).

Interest in the human personality has stemmed from the belief that it can be improved considerably. " There is wide disagreement", reiterate Newton and Roy the same



(24, pp.1-2), "Concerning various aspects of personality; but almost all authorities, pseudo-authorities, out-right quacks, and laymen agree that personality can be improved". But some theorists in the field of human personality development are of the view that human personality resists change to a considerable degree. "If it were not so, life would, of course, be chaotic" (17, p.355). As a via media, it seems better to believe that, "every personality develops continually from the stage of infancy until death, and throughout this span it persists even though it changes" (1, p. 102).

In spite of the acknowledgement that, "differences in personality are fully as important as the differences in mental abilities" (34, p. 162) not much research has been conducted in this area, particularly in those personality areas which have a direct bearing on the pupil's academic achievement (e.g., industry and effort, emotional stability and extraversion-introversion). The need for more systematic studies in this field has become imperative because of influx of 'child population, into schools, coming from different environments - e.g. poor and broken homes, emotionally poor adjusted parents and the like. It is, therefore, the need of the hour that pupils' personality characteristics and their influence on academic achievement be identified so that the cause of low scholastic achievement may be studied and dealt with.

The present study is merely an exploratory study



in this direction and intends to find out some basic differences between high and low achievers with regard to personality characteristics, which may be verified later on.

#### STATEMENT OF THE PROBLEM:

The present study endeavours to identify significant differences between personality characteristics of high and low achievers, studying in Class IX because the first year of higher secondary school course, "often provides unique demands for academic study and class-room behaviour." (15, p.1)

More specifically, the problem may be stated as follows :

" A Comparative Study of the Personality Characteristics of High and Low Achievers, as related to their Academic Achievement."

#### DELIMITATION OF THE STUDY:

The present study was delimited in terms of the following factors :

Although the term 'personality' is very comprehensive, yet it connotes specific meaning in the present study. It has explicitly been restricted to the following eight traits, in view of their paramount significance in the academic field:



- (1) Activity,
- (2) Hypomanic Temperament,
- (3) Attitude towards Moral Values,
- (4) Dominance,
- (5) Paranoid Tendency,
- (6) Depressive Tendency,
- (7) Emotional Instability, and
- (8) Introversion.

Likewise, the term 'academic achievement', being very comprehensive one, is restricted in the present study to the subjects, (88) total marks of half-yearly examination, 1967-68.

#### SOME TERMS DEFINED:

'Personality' has been defined in a variety of ways. Allport (1948), for instance, has defined the term personality in fifty ways from two distinct standpoints - definitions in terms of appearance, and definitions in terms of inner (essential) nature. The following definition seems to serve the purpose better :

" Personality is the dynamic organisation within the individual of those psychophysical systems that determine his unique adjustments to his environment" (1, p.48).

Since personality is a mode of survival, "adjustments to environment" indicate one's adjustment





(as well as maladjustment) to his environment.

Personality in the present study from this standpoint, has been defined in terms of eight traits which need a brief description:

#### ACTIVITY:

It refers to speed of work, planning, and good execution of work. It also includes persistence against mental boredom and physical fatigue. A person, scoring high on this trait, is regular, punctual, diligent, patient, and careful regarding his work.

#### HYPOMANIC TEMPERAMENT:

This trait consists of three aspects : (a) Cheerfulness, (b) Sociability, and (c) Active and lively disposition. A person, containing a high score on this trait, is carefree, happy-go-lucky, and humorous; he takes an active part in the conversation and is quick to say any thing that he feels like saying without considering its effect on others. He can easily make friendship with others and is popular in many circles.

#### ATTITUDE TOWARDS MORAL VALUES:

This trait includes high regard for moral values, social conventions, and altruistic motives. This trait may not appear to be a unitary trait though it seems to



reveal a significant area of one's personality which is not often assessed by the inventories used. Person, scoring <sup>high</sup> on this trait, keeps most of his resolutions and feels ashamed if he fails to keep a promise.

#### DOMINANCE:

This trait represents love for power and position, pride and assertiveness. High score, on this trait, indicates that the person is proud and self-willed. He feels superiority to others in certain respects and does not hesitate to express his opinions to his superiors. He tends to assert his views forcefully in a meeting or conversation.

#### PARANOID TENDENCY:

The main components of this trait are suspiciousness and jealousy. It also refers to a rigidity of opinions or refractoriness to logical analysis with respect to certain interpersonal problems. A person, scoring on this trait, considers others to be jealous of him. He seems to think that no body is to be trusted and everyone would tell a lie to save himself out of danger.

#### DEPRESSIVE TENDENCY:

This trait includes constant feelings of unhappiness and inferiority. A person, scoring high on this trait, feels sad most of the time and does not feel pleasure in



things which make others happy. He lacks enthusiasm in his work. This trait is in certain respects opposite to the Hypomanic Temperament.

EMOTIONAL INSTABILITY:

This trait includes lack of emotional control and easy susceptibility to arousal of emotions. This also refers to a person's inability to recover easily from emotional disturbance to the normal state. A person, scoring high on this trait, is easily hurt by the remarks and actions of others and is easily upset emotionally without adequate reason.

INTROVERSION:

This refers to a tendency of withdrawing from social situations and an inability of taking active part or interest in social gatherings. A person, scoring high on this trait, prefers to be himself and to work alone and finds it difficult to make new friends. Such a person becomes an isolated personality, the rejected hangers-on of our society; he starts brooding over his problems without expressing them freely to others. He is often self-conscious about his appearance or manner of talk.

\*\*\*\*\*



CHAPTER II.

PERSONALITY FACTORS AND ACADEMIC  
ACHIEVEMENT: A SURVEY OF RESEARCH.

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Many researches have been conducted in the field of personality in relation to academic achievement. For review purpose, they have been arranged from the point of view of different personality factors and their relationship with academic achievement.

#### STUDIES ABROAD:

Some research studies have identified significantly positive relationship between activity, industry and effort and high academic achievement. Behring (3,734-737) for instance, developed a quantitative scale of preferences for activities (APPS) to differentiate between high and low achievers on their activities. Mean APPS scale scores for high and low achievers, the results of the study showed, were significantly different ( $p < .001$ ), thereby indicating that the high achievers were more active than the low achievers. Similar results were obtained in another study (23, Pp.26-28) on high school graduates (the highest, the middle, and the lowest 10 per cent) where a positive relationship was identified between personality and character traits ratings done by the teachers, and the pupils' school success. A difference of 41 points



between the highest and the lowest group on the trait Industry and Effort was noted as contrasted to that of 20 points for the traits Personal Appearance and Social Adaptability.

( In some studies positive association has been observed between hypomanic temperament and high achievement. In a study (12, p. 278) over-achievers were found more cheerful, happier, and self-confident than under-achievers. Conversely, Yeomans and Lundin (12, p. 278), who using the MMPI, found that poorer students had high scores on "hypomanic" scales as compared to the high achievers.

Research evidence shows that there exists a positive relationship between positive attitude towards moral values and high achievement. In a study (31, p. 466) on the personality patterns of normal and retarded readers, it was observed that retarded readers, as a group, were inclined to be more aggressive, less self-insightful, and relatively poor than normal readers in knowing how to handle situations of conflict with adults. Holland (16, pp. 135-142), too, who used California Psychological Inventory on High School pupils, identified a positive association of high grades with Responsibility (Re) and Achievement via conformity (Ac). Similarly, in a study on 337 Canadian ninth-grade students which were divided into three groups (Honours, Mediocres, and Failures),



a positive relationship was identified between Responsibility (Re) and achievement via Conformity (Ac) and higher academic achievement (19, Pp.59-64). Another study (23, Pp.26-28) too, confirmed that high school pupils with higher grades were rated by their teachers as more courteous, honest, and co-operative than their fellow graduates who obtained lower grades.

Some researches have been conducted in order to find out relationship between dominance and academic achievement. In a study on-sample of 149 girls (25 % high and 25% low achievers), girls with higher grades were found to score relatively higher on the trait dominance than did the low-achieving girls (11, p.410). Similar results were obtained in another study (27, Pp. 183) on a students of 11 plus where dominance was found to be positively correlated with academic achievement in arithmetic and English. ✓

Low academic achievement, researches have shown, is associated with paranoid attitude on the part of students. Shaw and Black (29. 124) in a study on the high school achievers and under-achievers with high intellectual ability (bright) reported that while bright achievers tended to deny their responsibility for their own inadequate behaviour, the bright under-achievers admitted their guilt but they blamed circumstances for it, and they showed hostile attitude towards others.



Likewise, hostility, in another study (28, Pp.263-266) was noticed characteristically more in bright under-achievers than in bright achievers.

Emotionally stable pupils, it been observed, achieve more than the emotionally <sup>un</sup>stable ones. Low grade pupils, it was noticed, had high scores on Taylor Manifest Anxiety Scale (18, Pp. 448-460). It was also noted at some other place that students with high aptitude tended to obtain comparatively high grades regardless of their anxiety level (32, P.278). In a study on 84 full-time study, Centi (8, Pp. 187-188), too, who undertook it with a view to differentiating the highest from the lowest ranking students with respect to their personality and adjustments, observed that the lowest ranking students scored higher mean scores on five of the MMPI scales, (which indicated their poorer social and emotional adjustments) than did the corresponding highest ranking students. The anxious students, Rushton (27, p. 183) too, noted, were academically less able.

Both high and low achievers, research evidence indicates, score high on extraversion-introversion scale. Women subjects (Ss), it was reported in a study, had significantly higher mean score on the Extraversion-scale (  $t$  3.06,  $p$  .01) than the men Ss (4, Pp. 392-403). Lynn (20, pp. 213-216), and Astington (2, Pp.235-236), too, arrived at similar results when they noted that





successful students tended to score less scores on extraversion in comparison to the unsuccessful ones. But contradictory findings were obtained in another study (27, p.183) as well, where it was found that high scores on intraversion lead to academic achievement. The difference in the above findings may be well ascribed to the use of different tests and sample. .

### RESEARCH IN INDIA:

The gravity of temperamental difficulties was revealed in a study (9,p.48) where it was noticed that as large as one fourth of the total sample had to struggle with temperamental difficulties, particularly, general emotional instability. Out of these, there were about 25% of the children who had no other cause responsible for their back-wardness except emotional instability. Opposite results were obtained in two studies where the San Personality Profile Inventory was used. In the one (5,Pp.88-89), positive relationship was identified between high academic achievement and extraversion ; in the other (22, p.58) high academic achievement and introversion were found to be positively correlated. Similar results were obtained by Devadasan (8, Pp 81-84) and Sinha (30, Pp .92-93) who identified a negative relationship between Extraversion and academic achievement. The latter also reported a negative association of academic achievement with Dominance-



submission. Gupta (13, p.23) on the other hand, seems to be confusing when he, for instance, remarks that, " the achievers have a tendency towards extraversion but sometimes they become introvert."

INFERENTIAL CONCLUDING STATEMENT:

In the light of the above review, some facts come into light :

- (1) The high achievers are comparatively more active and persistent in their efforts;
- (2) The low achievers are emotionally less stable than the high achievers;
- (3) The high achievers feel greater responsibility for their assignments, and
- (4) The high and low achievers do not differ significantly in respect of extraversion-introversion.

But, contradictory findings have also emerged from the above studies, e.g.,

- (1) Low achievers are some-times relatively more hyp<sup>o</sup>manic by temperament than high achievers, whereas in most of the cases, high achievers are more cheerful and self-confident than the low ones.
- (2) The high achievers some-times tend to show aggressive behaviour towards their responsibility



Contradictions in the results may be ascribed to the defect in the selection of sample, design of the study, or in the instruments used. Thus, the question is yet open. The present study has been selected to find answer to this open question.

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## CHAPTER III

### PLAN AND PROCEDURE.





## GENERAL PROCEDURE.

The first procedural problem the investigator was faced with was of keeping intelligence constant as achievement is obviously a function of intelligence. The students of Class IX (N 330) were picked up from which the sample of this study was drawn. It was thought fit to determine the status of academic achievement of these 330 pupils from the usual half yearly examination w marks of the present academic session, i.e. 1957-58. With a view to keeping the factor of intelligence constant, the Jalota Group Test of Mental Ability (Hindi version) was administered to 330 students (boys 224, and girls 106). Then I.Q. units for each of the 330 students were computed. The <sup>marks</sup> ~~marks~~ of the students were arranged in descending order, for boys and girls separately and I.Q.'s for each of them were put against their respective marks. Then, measures of central tendency and variability for the I.Q.'s and marks of both the sex groups (taken as a whole and separately as well) were computed so as



to have an idea about the nature of the distribution in the two sex groups and students as a whole. Thereafter, upper and lower 33% of the students (Boys 74 in upper and 74 in lower group; Girls 36 in upper and 36 in lower group) were selected on the basis of their marks. The 33 per cent formula in stead of 27% was used because of small sample in the present study. Moreover, (7, pp.293-296) Cureton, in one of his studies has tried to justify the appropriateness of 33 per cent formula. As such, it was thought convenient to use 33 per cent formula for the purpose. Then, an attempt was made to equate the High and Low ~~Katixix~~ Achievers individually in respect of their I.Q.'s. It was found rather very difficult to equate the students on their I.Q.'s exactly; hence, the I.Q.'s lying within range of an interval of 5 points (both in the upper and lower 33%) were equated and thus 56 boys in the upper 33% were equated against 56 in the lower 33%; similarly, 28 girls in the upper 33% were equated against 28 in the lower 33%. Thus, the sample, finally selected, consisted of 168 students (boys 112, and girls 56). The means, medians and standard deviations were computed for the I.Q.'s of all the four sub-groups (boys - high and low; and, girls - high and low). Also, t-values were computed with a view to determining the extent of the difference between intelligence level of the high and low achievers in both the sex groups and these were found to be quite



quite non-significant (in the case of boys,  $t = .18$ ,  $df = 110$ ; and in the case of girls,  $t = .12$ ,  $df = 54$ ). Further, five group categories were formed with a view to comparing the high achievers with the low ones in respect of their mean scores on personality characteristics. These five group categories were - high and low achievers (total); high and low boys; high and low girls, high boys and girls; and, low boys and girls.

Eight personality characteristics were selected for the present investigation. It was decided to use a personality inventory, keeping its merits and demerits in mind. "In some disrepute", as Super (39, p.228), too, remarks, "for a number of years among psychologists because of their apparent lack of validity, personality inventories are now viewed somewhat more favourably thanks to technical improvements in their construction and better knowledge of when and how to use them." As such, Sen Personality Traits Inventory was used as a tool for collecting the relevant data for the study. It was felt that the use of this instrument could amply satisfy the purposes of the study. Vidya Bhargava (5, pp.85-86) and Mohale (22, p.58) used it in their studies and found it an appropriate instrument for study purposes.



**INSTRUMENTS USED,  
JALOTA GROUP TEST OF MENTAL ABILITY:**

The Jalota Group Test of Mental Ability was considered useful as it met most of the requirements of the present investigation. Some of the considerations that prompted its acceptance may be enumerated,

- (1) The aforementioned test is an age-scale and the items are arranged in order of increasing difficulty. Thus, even intelligent students can hardly attempt all the hundred items within the specified time.
- (2) This test has only 100 items which make it easy to administer in one session of the usual class period. The time specified for administering the test is 20 minutes.
- (3) The above-mentioned test was available in Hindi.
- (4) This test has been standardized on the Indian population. It has an added advantage in that it has been standardized on the population residing in northern part of India. Since the sample of the study belongs to the northern part of the country, the selection of the Jalota Test was most befitting.
- (5) The high reliability (.938) of the test ensures its wide and popular use throughout the northern region of India.





(6) The validity of the test ranged from .50 to .78. The value for pooled validity,  $V_1$  was 6.95 as against the figure of 2.60 necessary for .01 level of significance.

Further, the test includes the elements of

1. Vocabulary - similars;
2. Vocabulary - opposite answers;
3. Number series;
4. Classification;
5. Best Answers;
6. Inferences, and
7. Analogies, looking to a good deal of overlap.

Each of the following four categories - vocabulary similars, vocabulary opposites, Best Answers, and Inferences - consists of ten items; and each of the other three elements of Number Series, Classification, and Analogies consists of twenty items. Each of the seven elements has two illustrative items for demonstration purposes. One of them is given as a solved example, and the other is to be solved by the testees themselves before they are allowed to start on the test proper.

#### DR. BEN'S PERSONALITY TRAITS INVENTORY:

The personality was studied by means of the



Sen Personality Traits Inventory in order to obtain some significant data about some of the important personality characteristics of subjects of the study, viz, Activity, Hypomanic Temperament, Attitude towards Moral Values, Dominance, Paranoid tendency, Depressive Tendency, Emotional Instability, and Introversion. A brief description of this instrument, viz Sen P.T.I. is given below.

The Sen Personality Traits Inventory (Hindi version) met most of the requirements of the present investigation. Some of the considerations that under-lie the acceptance of the Sen P.T.I. may be enumerated:

- (1) The Sen Personality Traits Inventory is a multi-dimensional, self assessment personality inventory.
- (2) This inventory has only 120 items which makes it easy to be administered in one session of the usual class period, although no time has been specified for administering it.
- (3) The Sen P.T.I. was available to the researcher in Hindi.
- (4) This test has been duly standardized on the Indian population.
- (5) This test has high reliability (test-retest) on eight personality traits - Activity (.892), Hypomanic



Temperament (.634), Attitude towards Moral values (.592) Dominance (.865), Paranoid tendency (.783), Depressive tendency (.821), Emotional Instability (.724), and Introversion (.714). Such a reliability has ensured its wide and popular use throughout the country.

(6) The personality traits Inventory has been validated against clinical criterion and the results were obtained in the expected direction.

The Sen P.T.I. includes eight characteristics, viz, 1. Activity, 2. Hypomanic Temperament, 3. Attitude towards moral values, 4. Dominance, 5. Paranoid Tendency, 6. Depressive Tendency, 7. Emotional Instability, and 8. Introversion. Each of the eight personality characteristics (or traits) has 15 items. Thus, this inventory test consists of 120 items. Each of the statements of this inventory can be answered 'Yes', 'No' or '?' (indefinite). Although, in general, 'Yes' answer meant the presence of a particular trait element, in case of 7 statements - 2, 17, 31, 84, 91, 95 and 116 - 'No' answer indicated the presence of a particular trait element and they were given a score of 2 - a score given for 'Yes' statement. Two examples have also been given so as to make the respondents understand how to answer the statements.

#### POPULATION AND SAMPLE : COMPOSITION AND CHARACTERISTICS:

The students of Class IX (N 330), studying



in three higher schools - Government Higher Secondary School, Mehrauli, Government Model Higher Secondary School, Cutab (both for boys), and Municipal Corporation Girls Higher Secondary School, Mehrauli - were picked up from which the sample of this study (N 168 students - 112 boys, and 56 girls) was selected.

The data regarding the characteristics of the sample were obtained by administering a Personal Data Sheet along with the Sen Personality Traits Inventory. Table 1 presents some details about 168 students. Percentages for each element of information were also computed.





TABLE-I.

CHARACTERISTICS OF THE SAMPLE ( N 168 )

| S.No. | Description.                                         | Number, | % (of 168 students) |
|-------|------------------------------------------------------|---------|---------------------|
| 1.    | <u>SEX</u>                                           |         |                     |
|       | Male                                                 | 112     | 66.67               |
|       | Female.                                              | 56      | 33.33               |
| 2.    | <u>FATHER'S OCCUPATION:</u>                          |         |                     |
|       | Occupationally High.                                 | 17      | 10.12               |
|       | Occupationally Average                               | 79      | 47.03               |
|       | Occupationally low,                                  | 64      | 38.09               |
|       | Not reported,                                        | 8       | 4.78                |
| 3.    | <u>FATHER'S EDUCATION:</u>                           |         |                     |
|       | Illiterate,                                          | 39      | 23.21               |
|       | Upto Middle,                                         | 44      | 26.19               |
|       | Matric passed,                                       | 38      | 22.62               |
|       | Under Graduate,                                      | 6       | 3.57                |
|       | Graduate,                                            | 13      | 7.74                |
|       | Post graduates & Higher Education (Ph.D. & the like) | 11      | 6.55                |
|       | Not reported,                                        | 17      | 10.12               |
| 4.    | <u>MOTHER'S EDUCATION:</u>                           |         |                     |
|       | Illiterate,                                          | 67      | 39.88               |
|       | Upto middle,                                         | 59      | 35.12               |
|       | Matric passed,                                       | 17      | 10.12               |
|       | Under-graduate                                       | 3       | 1.79                |



Contd....Table-1.

|    |                                                                                  |     |       |
|----|----------------------------------------------------------------------------------|-----|-------|
|    | Graduate,                                                                        | -   | -     |
|    | Post-graduates, and Higher Education (Ph.D., & the like)                         | -   | -     |
|    | Not reported,                                                                    | 22  | 13.09 |
| 5. | <u>FATHER'S MONTHLY INCOME:</u>                                                  |     |       |
|    | High:                                                                            |     |       |
|    | Above 600                                                                        | 4   | 2.38  |
|    | 501 to 600                                                                       | 5   | 2.98  |
|    | Average:                                                                         |     |       |
|    | 401 to 500                                                                       | 6   | 3.67  |
|    | 101 to 400                                                                       | 87  | 67.74 |
|    | Low:                                                                             |     |       |
|    | Upto and below 100                                                               | 47  | 27.98 |
|    | Not reported,                                                                    | 9   | 5.35  |
| 6. | <u>NUMBER OF BROTHERS AND SISTERS OF THE PUPIL IN THE FAMILY:</u>                |     |       |
|    | One,                                                                             | 1   | .60   |
|    | Upto three,                                                                      | 15  | 8.92  |
|    | above three                                                                      | 147 | 87.50 |
|    | None,                                                                            | -   | -     |
|    | Not reported,                                                                    | 5   | 2.98  |
| 7. | <u>POSITION OF THE PUPIL AMONG BROTHERS AND SISTERS:</u><br>(Ranking from below) |     |       |
|    | First,                                                                           | 16  | 9.52  |



Contd.....Table-1.

|               |    |       |
|---------------|----|-------|
| Second        | 16 | 9.52  |
| Third,        | 22 | 13.09 |
| Above third,  | 68 | 40.47 |
| Lowest,       | 38 | 22.62 |
| Not reported, | 8  | 4.78  |

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Table-2 presents characteristics of the 168 students in the two sex-groups, finally selected after equating them on the basis of their I.Q.Units.

TABLE No.2.

Characteristics of the sample (N 168) in the two sex-groups.

| S. Description.<br>No.                                  | H I G H |       |    |       | L O W |       |    |       | Total |
|---------------------------------------------------------|---------|-------|----|-------|-------|-------|----|-------|-------|
|                                                         | B*      | %     | G* | %     | B     | %     | G  | %     |       |
| 1. Sex.                                                 |         |       |    |       |       |       |    |       |       |
| Male.                                                   | 56      |       |    |       | 56    |       |    |       | 112   |
| Female.                                                 | 28      |       |    |       | 28    |       |    |       | 56    |
| 2. Father's occupation.                                 |         |       |    |       |       |       |    |       |       |
| Occupationally High,                                    | 8       | 14.28 | 3  | 21.43 | 2     | 3.57  | 1  | 3.57  | 17    |
| Occupationally Average,                                 | 26      | 46.43 | 17 | 60.72 | 24    | 42.86 | 12 | 42.86 | 79    |
| Occupationally Low                                      | 20      | 35.72 | 3  | 10.71 | 27    | 48.21 | 14 | 50.00 | 64    |
| Not reported,                                           | 2       | 3.57  | 2  | 7.14  | 3     | 5.36  | 1  | 3.57  | 8     |
| 3. Father's Education:                                  |         |       |    |       |       |       |    |       |       |
| Illiterate,                                             | 15      | 26.79 | 1  | 3.57  | 23    | 41.07 | -  | -     | 39    |
| Upto Middle,                                            | 16      | 28.57 | 10 | 35.72 | 8     | 14.28 | 10 | 35.72 | 44    |
| Matric passed,                                          | 11      | 19.64 | 8  | 28.58 | 13    | 23.22 | 6  | 21.43 | 38    |
| Under-graduate,                                         | 1       | 1.79  | 2  | 7.14  | 2     | 3.57  | 1  | 3.57  | 6     |
| Graduates,                                              | -       | -     | 3  | 10.71 | 6     | 8.93  | 6  | 17.86 | 12    |
| Postgraduates and Higher Education (Ph.D. and the like) | 4       | 7.14  | -  | -     | 3     | 5.36  | 4  | 14.28 | 11    |
| Not reported,                                           | 9       | 16.07 | 4  | 14.28 | 2     | 3.57  | 2  | 7.14  | 17    |





Contd..... Table-2)

4. Mother's Education

|                                                                    |    |       |    |       |    |       |    |       |    |
|--------------------------------------------------------------------|----|-------|----|-------|----|-------|----|-------|----|
| Illiterate                                                         | 23 | 14.07 | 6  | 21.43 | 36 | 64.28 | 2  | 7.14  | 67 |
| Upto Middle.                                                       | 12 | 21.43 | 14 | 50.00 | 12 | 21.43 | 21 | 75.00 | 59 |
| Matric passed,                                                     | 10 | 17.86 | 2  | 7.14  | 3  | 5.36  | 2  | 7.14  | 17 |
| Undergraduate,                                                     | 2  | 3.57  | -  | -     | 1  | 1.79  | -  | -     | 3  |
| Graduates,                                                         | -  | -     | -  | -     | -  | -     | -  | -     | -  |
| Post-graduates,<br>and Higher<br>Education (Ph.D.<br>and the like) | -  | -     | -  | -     | -  | -     | -  | -     | -  |
| Not reported,                                                      | 9  | 16.07 | 6  | 21.43 | 4  | 7.14  | 3  | 10.72 | 22 |

5. Fathers' monthly Income:

High :

|           |   |      |   |      |   |      |   |   |   |
|-----------|---|------|---|------|---|------|---|---|---|
| Above 600 | 2 | 3.57 | - | -    | 2 | 3.57 | - | - | 4 |
| 501-600   | 3 | 5.36 | 1 | 3.57 | 1 | 1.79 | - | - | 6 |

Average :

|         |    |       |    |       |    |       |    |       |    |
|---------|----|-------|----|-------|----|-------|----|-------|----|
| 401-500 | 3  | 5.36  | -  | -     | 2  | 3.57  | 1  | 3.57  | 6  |
| 101-400 | 31 | 55.36 | 13 | 64.28 | 28 | 50.00 | 20 | 71.43 | 97 |

Low :

|                       |    |       |   |       |    |       |   |       |    |
|-----------------------|----|-------|---|-------|----|-------|---|-------|----|
| Upto and below<br>100 | 15 | 26.78 | 7 | 25.00 | 19 | 33.93 | 6 | 21.43 | 47 |
| Not reported,         | 2  | 3.57  | 2 | 7.14  | 4  | 7.14  | 1 | 3.57  | 9  |

6. NO. Of brothers  
& sisters of the  
pupil in the family:

|            |   |       |   |   |   |      |   |       |    |
|------------|---|-------|---|---|---|------|---|-------|----|
| One.       | - | -     | - | - | - | -    | 1 | 3.57  | 1  |
| Upto three | 6 | 10.71 | - | - | 5 | 8.93 | 4 | 14.28 | 15 |



Contd..... Table-2)

|               |    |       |    |        |    |       |    |       |     |
|---------------|----|-------|----|--------|----|-------|----|-------|-----|
| Above three   | 48 | 85.72 | 28 | 100.00 | 48 | 85.71 | 28 | 82.15 | 147 |
| None          | -  | -     | -  | -      | -  | -     | -  | -     | -   |
| Not reported, | 2  | 3.57  | -  | -      | 3  | 5.38  | -  | -     | 5   |

7. Position of the pupil among brothers and sisters (ranking from below)

|               |    |       |    |       |    |       |   |       |    |
|---------------|----|-------|----|-------|----|-------|---|-------|----|
| First,        | 6  | 10.71 | 3  | 10.71 | 2  | 3.57  | 5 | 17.86 | 16 |
| Second,       | 8  | 14.28 | 3  | 10.71 | -  | -     | 5 | 17.86 | 16 |
| Third,        | 12 | 21.43 | 3  | 10.71 | 6  | 10.71 | 2 | 3.57  | 22 |
| Above third,  | 20 | 35.72 | 14 | 50.00 | 26 | 46.43 | 8 | 28.57 | 68 |
| Lowest,       | 6  | 10.72 | 6  | 17.86 | 18 | 32.15 | 9 | 32.14 | 38 |
| Not reported, | 4  | 7.14  | -  | -     | 4  | 7.14  | - | -     | 8  |

\*B = Boys

% = Percentage of 56 boys.

\*G = Girls

% = Percentage of 28 girls.



An examination of the foregoing Table-2 reveals that the percentage of girls in the high group, with occupationally-high fathers is higher than that of the girls in the low group, although they are equal in the low group. On the other hand, boys (36.7 %) with occupationally low fathers, are more than girls (26 percent). As regards their fathers' education, more boys' fathers are reported to be illiterate than those of girls both in the high and low groups. Except in the case of a few boys, with post graduate fathers, girls appear to have got upper hand with regard to over-all educational position of their fathers. The same current seems to have flown in the field of their mothers' education where, too, more boys' mothers are reported to be illiterate than those of the girls both in the high and low groups. Like a few boys, with fathers having post-graduate degree and higher education, here, too, only a nominal number of boys (3.67 % in the high group, and 1.79 % in the low group) are reported to have highly educated fathers whereas the girls have none in this category. The above trend, it seems, has disappeared in respect of the monthly income of the subjects, fathers where the percentage of boys, with fathers in the high income category, exceeds that of girls both in the high and low groups. But, the number of girls, with fathers earning average and low income, exceeds that of the boys. It was also observed that the trend among the two groups, is not clear with regard to the number of pupils' brothers and



sisters in the family. But, the relationship between girls and boys in both the groups with regard to their status among brothers and sisters is quite reverse. That is to say, whereas more boys in the high group are reported to have first, second or third position (ranking from below) among brothers and sisters than the girls, more girls share such status in the low group. Conversely more girls in the high group have low position among their brothers and sisters than boys and vice versa.

Some statistical measures were also computed and studied. Table-3 presents these measures of the total group at a glance.





TABLE No. 3.

Statistical measures of some selected Variables  
of the total group.

---

| S. No. | Variable. | Mean | Median | S.D. | Range |
|--------|-----------|------|--------|------|-------|
|--------|-----------|------|--------|------|-------|

---

BOYS (N 224)

|    |                        |        |        |       |                     |
|----|------------------------|--------|--------|-------|---------------------|
| 1. | Achievement<br>(Marks) | 250.3  | 249.5  | 60.00 | (414.5-1205 234.00) |
| 2. | Intelligence<br>(I.Q.) | 108.15 | 108.87 | 18.80 | (180.5-89.5 91.00)  |

GIRLS (N 106)

|    |                        |        |       |       |                      |
|----|------------------------|--------|-------|-------|----------------------|
| 1. | Achievement<br>(Marks) | 301.30 | 283.3 | 82.80 | (621.5-158.5 363.00) |
| 2. | Intelligence<br>(I.Q.) | 100.96 | 99.28 | 19.83 | (159.5-69.5 84.00)   |

---



Tables 4 and 5 present some statistical measures of the upper 33 % and lower 33 % boys and girls -  
(boys 74 in upper and 74 in lower g 33% ; girls 35 in upper and 35 in lower 33%)

TABLE No. 4

Statistical measures of some selected variables of the upper 33% and lower 33% boys ( N 74 74 148)

| S. No.           | Variable.            | Mean.  | Median | S.D.  | Range                |
|------------------|----------------------|--------|--------|-------|----------------------|
| High (33%, N 74) |                      |        |        |       |                      |
| 1.               | Achievement (Marks)  | 317.93 | 315.9  | 30.86 | (414.5-271.5 143.00) |
| 2.               | Intelligence, (I.C.) | 113.29 | 114.5  | 19.28 | (160.5-69.5 91.00)   |
| Low (33%; N 74)  |                      |        |        |       |                      |
| 1.               | Achievement (Marks)  | 134.16 | 137.00 | 26.52 | (220.5-120.5 100.00) |
| 2.               | Intelligence, (I.C.) | 102.45 | 103.79 | 16.40 | (132.5-69.5 63.00)   |



TABLE No. 5

Statistical measures of some selected variables  
of the upper 33% and lower 33%, Girls (N 35 35 70)

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| S. No. | Variable. | Mean. | Median. | S.D. | Range. |
|--------|-----------|-------|---------|------|--------|
|--------|-----------|-------|---------|------|--------|

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High (33% ; N 35)

|    |                         |        |        |       |                      |
|----|-------------------------|--------|--------|-------|----------------------|
| 1. | Achievement,<br>(Marks) | 402.50 | 403.25 | 43.50 | (321.5-335.5 186.00) |
| 2. | Intelligence,<br>(I.Q.) | 106.55 | 103.38 | 24.15 | (153.5-70.5 83.00)   |

Lower (33 % N 35)

|    |                         |        |        |       |                     |
|----|-------------------------|--------|--------|-------|---------------------|
| 1. | Achievement,<br>Marks,  | 216.45 | 218.25 | 27.75 | (255.5-158.5 97.00) |
| 2. | Intelligence,<br>(I.Q.) | 97.29  | 97.00  | 16.62 | (128.5-59.5 59.00)  |

---



The following two consecutive tables 6 and 7 show various statistical measures for the final sample of the two sex groups (with high and low sub-groups in each sex group), equated on intelligence.

TABLE No.6

Statistical Measures of Some selected variables of  
the high and low boys, equated on  
intelligence (N 56 56 112)

| S. No.      | Variable.                     | Mean.  | Median. | L.D.  | Range                |
|-------------|-------------------------------|--------|---------|-------|----------------------|
| HIGH (N 56) |                               |        |         |       |                      |
| 1.          | Achievement (Marks)           | 318.99 | 317.30  | 31.68 | (414.5-271.5 143.00) |
| 2.          | $\Sigma$ Intelligence, (I.C.) | 109.86 | 106.17  | 13.48 | (132.5-19.5 63.00)   |
| LOW (N 56)  |                               |        |         |       |                      |
| 1.          | Achievement (Marks)           | 192.70 | 195.33  | 20.58 | (220.5-141.5 79.00)  |
| 2.          | Intelligence, (I.C.)          | 110.22 | 107.00  | 13.38 | (132.5-63.5 63.00)   |





TABLE No.7

Statistical measures of some selected variables of  
the high and low girls, equated on intelligence  
( N 28 28 56)

| S. No.      | Variable,                     | Mean,  | Median, | S.D.  | Range.               |
|-------------|-------------------------------|--------|---------|-------|----------------------|
| HIGH (N 28) |                               |        |         |       |                      |
| 1.          | Achievement<br>(Marks)        | 328.25 | 308.5   | 38.44 | (463.5-335.5 128.00) |
| 2.          | Intelligence,<br>(I.Q.)       | 97.18  | 94.50   | 18.68 | (131.5-70.5 61.00)   |
| LOW ( N 28) |                               |        |         |       |                      |
| 1.          | Achievement<br>(Marks)        | 213.97 | 217.00  | 28.42 | (266.5-168.5 97.00)  |
| 2.          | Intelligence,<br>(Marks) I.Q. | 97.71  | 94.50   | 18.48 | (131.5-70.5 61.00)   |



In order to find out the extent of magnitude of the difference between the two equated groups, t-values were computed which were found non-significant - (in the case of boys, (t .13), df 110; and in the case of girls (t .12, df 54). Hence, it is justifiable to say that the high and low sub-groups in both the sex groups are comparable in respect of their I.Q.Units.

#### COLLECTION OF DATA:

The data were collected from the aforementioned schools in the month of January and February, 1958. First, the Jalota Group Test of Mental Ability (Hindi version) was administered to the students of Class IX, studying in Government Higher Secondary Schools, Mehrauli and Cutub, and Municipal Corporation Girls Higher Secondary School, Mehrauli, with the Cooperation of the principals, teachers and students.

The investigator explained the nature and purpose of the investigation to the teachers who introduced the investigator to the students of Class IX and thereafter the entire test administration was managed by the investigator himself. The identical directions were issued to the students in all the sections.

It was felt that by this time the students were fully motivated and were prepared to do the needful.



Hence, the test book-lets and answer-sheets were passed on to the tessees. The investigator explained through solved examples how to answer the items. The tessees were also asked to solve seven unsolved examples in the light of the solved ones. Then, the students were asked to start their work. The investigator collected the test book-lets and answer-sheets from the tessees at the end of the twenty minutes.

After a fortnight, the Sen Personality Traits Inventory was administered to the same students.

First, the instructions were issued to them and then they were asked to start their work. It was observed during supervision that the time taken by various groups, in filling up the Sen P.T.I., varied from 30 to 40 minutes. It was also observed during the testing-session that the girls in high group took 25 to 35 minutes while the boys in the high group took from 30 to 40 minutes, but no such difference was noted between the two sexes in the lower group.

#### PROCEDURE OF DATA ANALYSIS:

Four statistical measures, viz, measures of central tendency, variability, percentages, and t-test were computed. The data regarding personality characteristics collected through the use of the Sen P.T.I. were scored



under two groups. The means and standard deviations of the scores on the personality traits were computed.

In order to identify personality characteristics of high and low achievers in the two sex groups, means on each of the eight personality characteristics were calculated and t-test of significance was applied.

The analysis of the data and its interpretation are presented in the next Chapter.

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## CHAPTER IV.

### ANALYSIS AND INTERPRETATION OF DATA:



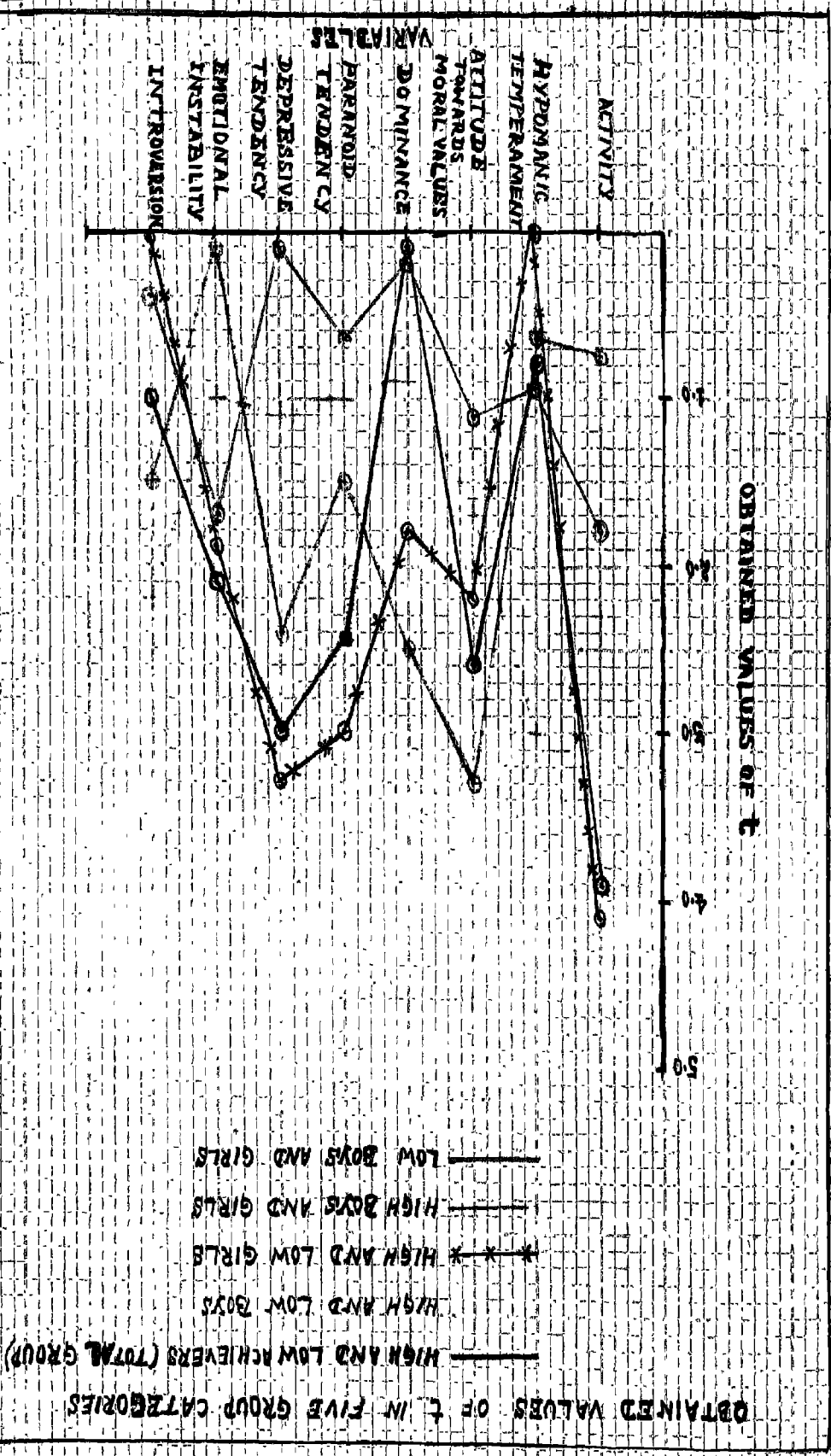
## ANALYSIS OF DATA

The data obtained from the administration of the Ben Personality Traits Inventory to boys and girls were tabulated into two groups - high achievers and low achievers - both for the boys and the girls.

In order to study differences between high and low achievers with regard to their personality characteristics, t-values were computed between the mean scores of the five group categories - high and low achievers (total); high and low boys; high and low girls; high boys and girls; and, low boys and girls.

In order to make the t-values meaningful, a graphical profile was prepared. Figure-1 presents the profile of t-values in respect of the afore mentioned five group categories.







DISCUSSION OF RESULTS:

Each one of the eight personality characteristics or traits were taken into account and an attempt was made to compare five groups categories with regard to the differences in their personality characteristics and thereby to identify the characteristics with them. A close scrutiny of Tables 8,9,10,11 and 12 reveals many interesting results.





TABLE No.8

T-Values indicating significance of the difference between mean scores of the high and low achievers (total group) on personality characteristics.

| S. No. | Personality characteristics.   | Means & S.D. of Boys (High Group) | Means & S.D. of Girls (Low Group) | Computed t-value or C.R. | df. | tabulated t-levels. |      | *Interpretation. |            |
|--------|--------------------------------|-----------------------------------|-----------------------------------|--------------------------|-----|---------------------|------|------------------|------------|
|        |                                |                                   |                                   |                          |     | .05                 | .01  | p                | S. or N.S. |
| 1      | 2                              | 3                                 | 4                                 | 5                        | 6   | 7                   | 8    | 9                | 10         |
| 1.     | Activity                       | 23.93<br>4.40                     | 21.12<br>4.92                     | 3.90                     | 166 | 1.98                | 2.61 | <.01             | S.         |
| 2.     | Hypomanic Temperament          | 18.14<br>4.18                     | 17.62<br>4.28                     | .79                      | 166 | 1.98                | 2.61 | —                | N.S.       |
| 3.     | Attitude towards moral values. | 24.40<br>3.20                     | 23.00<br>3.69                     | 2.61                     | 166 | 1.98                | 2.61 | ≤.01             | S.         |
| 4.     | Dominance.                     | 18.22<br>4.14                     | 18.17<br>4.09                     | .09                      | 166 | 1.98                | 2.61 | —                | N.S.       |
| 5.     | Paranoid tendency.             | 17.00<br>4.04                     | 18.67<br>4.04                     | 2.45                     | 166 | 1.98                | 2.61 | ≤.05             | S.         |
| 6.     | Depressive Tendency.           | 15.68<br>4.64                     | 17.64<br>4.12                     | 3.03                     | 166 | 1.98                | 2.61 | <.01             | S.         |
| 7.     | Emotional Instability.         | 12.22<br>4.98                     | 13.79<br>4.58                     | 2.12                     | 166 | 1.98                | 2.61 | ≤.05             | S.         |
| 8.     | Introversiion                  | 13.36<br>4.96                     | 14.48<br>5.14                     | 1.00                     | 166 | 1.98                | 2.61 | —                | N.S.       |

N.B. \* Taken from p. 46. for the sake of Convenience.

1 S. = Significant

2 N.S. = Non Significant

Contd.....



Contd.....Table No. 8.

| S.No. | Personality characteristics.   | Magnitude of significance. | Interpretation                |                                       |
|-------|--------------------------------|----------------------------|-------------------------------|---------------------------------------|
|       |                                |                            | Significant Non-significance. | Null Hypothesis rejected or accepted. |
| 1     | 2                              | 3                          | 10                            | 11                                    |
| 1.    | Activity.                      | Beyond .01                 | Significant.                  | Rejected.                             |
| 2.    | Hypomanic permanent.           |                            | Non-significant.              | Accepted.                             |
| 3.    | Attitude towards moral values. | at .01                     | Significant.                  | Rejected.                             |
| 4.    | Dominance.                     |                            | Non-significant.              | Accepted.                             |
| 5.    | Paranoid tendency.             | at .05                     | Significant.                  | Rejected.                             |
| 6.    | Depressive tendency.           | Beyond .01                 | Significant.                  | Rejected.                             |
| 7.    | Emotional Instability.         | at .05                     | Significant.                  | Rejected.                             |
| 8.    | Introversion.                  |                            | Non-significant.              | Accepted.                             |



TABLE NO. 9

T-values indicating significance of the difference between Mean scores of High and Low boys on personality characteristics.

| S. No. | Personality characteristics.   | Means & S.D.'s of boys (High Group) | Means & S.D.'s of boys (Low Group) | Computed t-value or C.R. | df  | Tabulated t-values. |      | Interpretation. |            |
|--------|--------------------------------|-------------------------------------|------------------------------------|--------------------------|-----|---------------------|------|-----------------|------------|
|        |                                |                                     |                                    |                          |     | .05                 | .01  | p.              | S. or N.S. |
| 1      | 2                              | 3                                   | 4                                  | 5                        | 6   | 7                   | 8    | 9               | 10         |
| 1.     | Activity                       | 23.68<br>4.61                       | 21.64<br>4.72                      | 2.61                     | 110 | 1.98                | 2.63 | $\leq .05$      | S.         |
| 2.     | Hypomanic Temperament.         | 18.82<br>4.32                       | 16.32<br>4.46                      | 3.02                     | 110 | 1.98                | 2.63 | $< .01$         | S.         |
| 3.     | Attitude towards moral values. | 23.79<br>3.01                       | 22.71<br>3.87                      | 1.65                     | 110 | 1.98                | 2.63 | —               | N.S.       |
| 4.     | Dominance.                     | 17.46<br>4.63                       | 13.18<br>4.08                      | .87                      | 110 | 1.98                | 2.63 | —               | N.S.       |
| 5.     | Paranoid Tendency.             | 17.57<br>6.18                       | 18.46<br>4.22                      | .99                      | 110 | 1.98                | 2.63 | —               | N.S.       |
| 6.     | Depressive Tendency.           | 16.75<br>4.91                       | 17.38<br>4.21                      | 1.03                     | 110 | 1.98                | 2.63 | —               | N.S.       |
| 7.     | Emotional Instability.         | 12.18<br>4.99                       | 13.05<br>4.40                      | .98                      | 110 | 1.98                | 2.63 | —               | N.S.       |
| 8.     | Introversion.                  | 12.50<br>4.94                       | 16.61<br>6.30                      | 2.18                     | 110 | 1.98                | 2.63 | $< .05$         | S.         |

N.B. \* Taken from page 48 for the sake of convenience.

Contd. ....



| S. No. | Personality characteristics.   | Magnitude of significance. | Interpretation                  |                                       |
|--------|--------------------------------|----------------------------|---------------------------------|---------------------------------------|
|        |                                |                            | Significant or non-significant. | Null hypothesis rejected or accepted. |
| 1      | 2                              | 3                          | 10                              | 11                                    |
| 1.     | Activity.                      | at .05                     | Significant.                    | Rejected.                             |
| 2.     | Hypomanic temperament.         | Beyond .01                 | Significant.                    | Rejected.                             |
| 3.     | Attitude towards moral values. |                            | Non-significant.                | Accepted.                             |
| 4.     | Dominance.                     |                            | Non-significant.                | Accepted.                             |
| 5.     | Paranoid tendency.             |                            | Non-significant.                | Accepted.                             |
| 6.     | Depressive tendency.           |                            | Non-significant.                | Accepted.                             |
| 7.     | Emotional instability.         |                            | Non-significant.                | Accepted.                             |
| 8.     | Introversion.                  | at .05                     | Significant.                    | Rejected.                             |





TABLE NO. 10.

T-Values indicating significance of the difference between Mean Scores of High and Low Girls on personality characteristics.

| S. No. | Personality characteristics.   | Means & S.D.'s of boys girls (High group) | Means & S.D.'s of girls (Low group) | Computed t-value | df | Tabulated t-values |      | % Interpretation. |            |
|--------|--------------------------------|-------------------------------------------|-------------------------------------|------------------|----|--------------------|------|-------------------|------------|
|        |                                |                                           |                                     |                  |    | .05                | .01  | p                 | S. or N.S. |
| 1      | 2                              | 3                                         | 4                                   | 5                | 6  | 7                  | 8    | 9                 | 10         |
| 1.     | Activity                       | 24.43<br>3.98                             | 19.34<br>4.76                       | 4.08             | 54 | 2.01               | 2.68 | <.01              | S.         |
| 2.     | Hypomanic Temperament.         | 18.21<br>3.96                             | 14.21<br>3.94                       | 0.00             | 54 | 2.01               | 2.68 | —                 | N.S.       |
| 3.     | Attitude towards moral values. | 25.64<br>3.44                             | 23.64<br>3.30                       | 2.22             | 54 | 2.01               | 2.68 | ≤ .05             | S.         |
| 4.     | Dominance,                     | 19.36<br>3.38                             | 13.00<br>4.20                       | 1.32             | 54 | 2.01               | 2.68 | —                 | N.S.       |
| 5.     | Paranoid Tendency.             | 15.88<br>4.30                             | 19.07<br>3.72                       | 3.00             | 54 | 2.01               | 2.68 | <.01              | S.         |
| 6.     | Depressive Tendency.           | 14.21<br>3.72                             | 17.57<br>3.93                       | 3.26             | 54 | 2.01               | 2.68 | <.01              | S.         |
| 7.     | Emotional Instability.         | 12.24<br>5.18                             | 14.86<br>5.02                       | 1.33             | 54 | 2.01               | 2.68 | —                 | N.S.       |
| 8.     | Introversi.                    | 14.24<br>5.34                             | 14.21<br>4.34                       | .02              | 54 | 2.01               | 2.68 | —                 | N.S.       |

N.B. \* Taken from p. 50 for the sake of Convenience.

Contd. ....



Contd..... Table-10)

| S. No. | Personality characteristics.   | Magnitude of significance. | Interpretation                  |                                       |
|--------|--------------------------------|----------------------------|---------------------------------|---------------------------------------|
|        |                                |                            | Significant or non-significant. | Null Hypothesis rejected or accepted. |
| 1      | 2                              | 3                          | 10                              | 11                                    |
| 1.     | Activity.                      | Beyond .01                 | Significant.                    | Rejected.                             |
| 2.     | Hypomanic Temperament.         |                            | Non-significant.                | Accepted.                             |
| 3.     | Attitude towards moral values. | at .05                     | Significant.                    | Rejected.                             |
| 4.     | Dominance.                     |                            | Non-significant.                | Accepted.                             |
| 5.     | Paranoid tendency.             | Beyond .01                 | Significant.                    | Rejected.                             |
| 6.     | Depressive tendency.           | Beyond .01                 | Significant.                    | Rejected.                             |
| 7.     | Emotional Instability.         |                            | Non-significant.                | Accepted.                             |
| 8.     | Introversion.                  |                            | Non-significant.                | Accepted.                             |



TABLE No. 11.

T-Values indicating significance of the difference between mean scores of high boys & girls on personality characteristics.

| S. No. | Personality characteristics.   | Means & S.D.'s of boys (High group) | Means & S.D.'s of girls (High group) | Computed t-value | df | Tabulated t-values |      | Interpretation |            |
|--------|--------------------------------|-------------------------------------|--------------------------------------|------------------|----|--------------------|------|----------------|------------|
|        |                                |                                     |                                      |                  |    | .05                | .01  | <i>p</i>       | S. or N.S. |
| 1      | 2                              | 3                                   | 4                                    | 5                | 6  | 7                  | 8    | 9              | 10         |
| 1.     | Activity.                      | 23.68<br>4.61                       | 24.43<br>3.98                        | .74              | 82 | 1.99               | 2.64 | —              | N.S.       |
| 2.     | Hypomanic Temperament.         | 18.82<br>4.32                       | 18.21<br>3.95                        | .66              | 82 | 1.99               | 2.64 | —              | N.S.       |
| 3.     | Attitude towards moral values. | 20.79<br>3.01                       | 25.64<br>3.44                        | 3.23             | 82 | 1.99               | 2.64 | <.01           | S.         |
| 4.     | Dominance.                     | 17.46<br>4.63                       | 19.86<br>3.33                        | 2.47             | 82 | 1.99               | 2.64 | ≤.05           | S.         |
| 5.     | Paranoid Tendency.             | 17.57<br>5.18                       | 16.86<br>4.30                        | 1.50             | 82 | 1.99               | 2.64 | —              | N.S.       |
| 6.     | Depressive Tendency.           | 16.76<br>4.01                       | 14.21<br>3.72                        | 2.42             | 82 | 1.99               | 2.64 | ≤.05           | S.         |
| 7.     | Emotional Instability.         | 12.13<br>4.99                       | 12.24<br>5.18                        | .06              | 82 | 1.99               | 2.64 | —              | N.S.       |
| 8.     | Introversiion.                 | 12.60<br>4.94                       | 14.24<br>5.34                        | 1.51             | 82 | 1.99               | 2.64 | —              | N.S.       |

N.B. \* Taken from p. 52 for the sake of convenience.

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Contd..... Table 11)

| S. No. | Personality characteristics.   | Magnitude of significance. | Interpretation                  |                                       |
|--------|--------------------------------|----------------------------|---------------------------------|---------------------------------------|
|        |                                |                            | Significant or non-significant. | Null Hypothesis rejected or accepted. |
| 1      | 2                              | 3                          | 10                              | 11                                    |
| 1.     | Activity.                      |                            | Non-significant.                | Accepted.                             |
| 2.     | Hypomanic Temperament.         |                            | Non-significant.                | Accepted.                             |
| 3.     | Attitude towards moral values. | Beyond .01                 | Significant.                    | Rejected.                             |
| 4.     | Dominance.                     | at .05                     | Significant.                    | Rejected.                             |
| 5.     | Paranoid Tendency.             |                            | Non-significant.                | Accepted.                             |
| 6.     | Depressive Tendency.           | at .05                     | Significant.                    | Rejected.                             |
| 7.     | Emotional Instability.         |                            | Non-significant.                | Accepted.                             |
| 8.     | Introversiion.                 |                            | Non-significant.                | Accepted.                             |





TABLE No.12

t-Values indicating significance of the difference between  
Mean scores of low boys and girls on personality  
characteristics.

| No. | Personality characteristics.   | Means & S.D.'s      |                      | Computed t-value | df | Tabulated t-values |      | Interpretation |            |
|-----|--------------------------------|---------------------|----------------------|------------------|----|--------------------|------|----------------|------------|
|     |                                | of boys (low group) | of girls (low group) |                  |    | .05                | .01  | p              | S. or N.S. |
| 1   | 2                              | 3                   | 4                    | 5                | 6  | 7                  | 8    |                |            |
| 1.  | Activity                       | 21.64<br>4.72       | 19.64<br>4.76        | 1.83             | 82 | 1.99               | 2.64 | —              | N.S.       |
| 2.  | Hypomelic Temperament.         | 16.32<br>4.46       | 18.21<br>3.94        | .94              | 82 | 1.99               | 2.64 | —              | N.S.       |
| 3.  | Attitude towards moral values. | 22.71<br>3.87       | 23.04<br>3.30        | 1.03             | 82 | 1.99               | 2.64 | —              | N.S.       |
| 4.  | Dominance                      | 18.18<br>4.03       | 18.00<br>4.20        | .19              | 82 | 1.99               | 2.64 | —              | N.S.       |
| 5.  | Paranoid tendency.             | 18.46<br>4.22       | 19.07<br>3.72        | .65              | 82 | 1.99               | 2.64 | —              | N.S.       |
| 6.  | Depressive tendency.           | 17.68<br>4.21       | 17.57<br>3.98        | .11              | 82 | 1.99               | 2.64 | —              | N.S.       |
| 7.  | Emotional instability.         | 13.05<br>4.40       | 14.26<br>5.02        | 1.70             | 82 | 1.99               | 2.64 | —              | N.S.       |
| 8.  | Introversion.                  | 14.61<br>5.30       | 14.21<br>4.94        | .37              | 82 | 1.99               | 2.64 | —              | N.S.       |

\* Taken from p. 54 for the sake of convenience.

Contd. ....



Contd..... Table 12)

| S. No. | Personality characteristics.   | Magnitude of significance. | Interpretation                  |                                       |
|--------|--------------------------------|----------------------------|---------------------------------|---------------------------------------|
|        |                                |                            | significant or non-significant. | Null Hypothesis rejected or accepted. |
| 1.     | Activity.                      |                            | Non-significant.                | Re Accepted.                          |
| 2.     | Hypomanic Temperament.         |                            | Non-significant.                | Accepted.                             |
| 3.     | Attitude towards moral values. |                            | Non-significant.                | Accepted.                             |
| 4.     | Dominance.                     |                            | Non-significant.                | Accepted.                             |
| 5.     | Paranoid tendency.             |                            | Non-significant.                | Accepted.                             |
| 6.     | Depressive Tendency.           |                            | Non-significant.                | Accepted.                             |
| 7.     | Emotional Instability.         |                            | Non-significant.                | Accepted.                             |
| 8.     | Introversion.                  |                            | Non-significant.                | Accepted.                             |



### ACTIVITY:

Table 3 reveals a significant difference ( $t$  3.90,  $df$  163;  $p$  is less than .01) between the means of total group of boys and girls in the high and low groups which, in turn, confirms the common belief that high achievers, irrespective of sex differences, are comparatively more active, persistent, energetic, diligent, and hard-working than low achievers. Studied separately, too, boys in the high group have scored more than those in the low group ( $t$  2.31,  $df$  110;  $p$  is less than .05); similarly, high achieving girls are more active and intensive in their work (as indicated by  $t$  4.01,  $df$  54,  $p$  is less than .01) than low achieving girls. Further, it is really interesting to note that high achieving boys and girls do not differ significantly from one another with regard to industry and effort. Thus, it helps in refuting the age-old notion that boys are more industrious than girls. The same trend is visible in the case of low-achieving boys and girls who do not differ significantly ( $t$  1.83,  $df$  82) from one another with regard to industry, persistence, and effort (here, represented by their school marks). That is to say, while boys and girls, in the high groups are equally active, pains-taking, and industrious; boys and girls, in the low group are equally lazy, sluggish, and shirkers.

Other studies, dealing with this trait, corroborate



the results of the present study. Behring (3, Pp.734-737), for instance, found high achievers, "energetic having a need for understanding and solution of problems, interested in theoretical speculations, and socially withdrawn, and low achievers were observed shunning from self-criticism." Musselman (23, Pp.23-28), who asked the teachers to rate the highest, the middle, and the lowest 10% of the students on personality traits, reported a significant difference of "41 points between the high and the low groups in the trait Industry and Efforts" which "indicates a strong teacher attitude about hard work and good grades." Thus, he seems to confirm the present results by observing that the degree of comparative superiority or inferiority in those traits has a positive relationship to the level of academic success (ibid, Pp.26-28). Hackett (14, Pp.68-69) found high achievers "interested in verbal activities." Parkins (25, Pp.5-6) observed, "extracurricular behaviour syndrome" characterizing the under-achievers. They were observed more frequently engaged in activities unrelated to academic achievement than achievers. But, whereas the high boys and girls as well as low boys and girls, in the present study, do not differ significantly, the study by Parkins reveals that "girls spend more classroom time in REWR (Reading and Writing in assigned area - active), LWP (Social Work Oriented - PEER: discussing some aspect of school work with class-mate), and SWT (discussing with teacher) than do boys who engage more frequently in WOA (Intent on Work in another Curricular area).





In general, the results of the present study and those of other studies support the belief that learning activities and work-oriented student behaviour (particularly, industry, persistence, and effort) that facilitate learning are associated with increased achievement, whereas those kinds of work-oriented student behaviour that are less facilitative of learning are associated with low academic achievement.

#### HYPOMANIC TEMPERAMENT:

Except the high and low achieving boys, all other four groups do not indicate any significant difference between mean scores of their respective high and low subgroups. Table 9 indicates that high achieving boys ( $t = 3.02$ ,  $df = 110$ ;  $p$  is less than .01) are more cheerful, sociable, carefree and happy-go-lucky than low-achieving boys.

It is revealing to note that high and low girls are quite identical in respect of their hypomanic temperament as their mean scores are equal ( $M = 18.20$ ). Also, high boys and girls ( $t = .65$ ,  $df = 82$ ) and low boys and girls ( $t = .04$ ,  $df = 82$ ) are almost equal in respect of their hypomanic temperament.

But Yeomans and Lundine (12, p. 278) using M.M.P.I., found that poorer students had a high score on the



"hypomanic" scale, whereas high achievers tended to score high on Mf(femininity). But Fink (10, Pp.110-111), on the other hand, noticed that underachieving boys appear to be the most inadequate and immature; and, they also feel socially left-out.

But, this trait seems to have no specific role to play in the groups other than that, consisting of boys in high and low sub-groups. Hence, one has to be cautious while generalizing the results of the present study to the general population.

#### ATTITUDE TOWARDS MORAL VALUES:

The total group of boys and girls, divided into high and low sub-groups, shows a distinct trend with regard to boys, and girls, attitude towards moral values. Table 8 indicates that boys and girls, taken together, in the high group, comparatively score high, scores on this trait ( $t = 2.61$ ,  $df = 83$ ;  $p$  is less than or equal to  $.01$ ) than those in the low group. The credit for it should go to the girls in the high group whose mean score ( $M = 25.34$ ;  $S.D. = 3.44$ ) is higher than that of boys in the high group ( $M = 23.79$ ;  $S.D. = 3.01$ ). Thus, whereas boys in the high group ( $t = 1.66$ ,  $df = 110$ ;  $p$  is less than  $.05$ ) are equal to the low-achieving boys with regard to their attitude towards moral values, girls in the high group differ significantly ( $t = 2.22$ ,  $df = 54$ ;  $p$  is less than  $.05$ ) from the low-achieving



girls. And, naturally enough, as shown above, there exists a significant difference (  $t = 3.28$ ,  $df = 82$ ;  $p$  is less than .01) between mean scores of the girls and those of the boys in their respective high groups. Further, although low-achieving girls obtain higher mean scores (  $M = 23.64$ ,  $S.D. = 3.30$ ) than low achieving boys (  $M = 22.71$ ,  $S.D. = 3.87$ ), yet they do not differ significantly from the boys in respect of their attitude towards moral values.

Thus, it seems fair to say that the total group of high-achieving boys and girls has positive attitude towards moral values to a greater extent than that of the low-achieving boys and girls. This confirms our belief that high achievers are more dutiful and respectful who try to keep their promises and resolutions, although results in the present study further reveal that high-achieving girls are comparatively more dutiful and regardful of moral values and school conventions than the high-achieving boys. But, at the same time, low achieving boys and girls have similar attitude towards moral values, i.e. negative attitude towards moral values. This shows that low boys and girls are equally arrogant and aggressive; and both of them have the least of regard towards moral conventions of the school. It can also be inferred that they misbehave frequently with their teachers and class-mates.

Other studies, in the field, corroborate these results. Spache (31, p. 466), for instance, concluded that



"the handicapped readers are, as a group, inclined to be more aggressive and defensive than children of their ages, less self-insightful, and are relatively poor in knowing how to handle situations of conflict with adults. They also tend to exhibit a passive but defensive, attitude or negativism towards authority figures." Conversely, a study reveals that "the result indicates that high achievers tended to deny aggressively responsibility for the offence with which they were charged significantly more than underachievers." (29, p.124).

#### DOMINANCE.

It is revealing to note that all other four group categories except that of high boys and girls (compared with each other), do not show significant difference between means of their respective high and low sub-groups. Only in the case of high boys and girls, a significant difference ( $t = 2.47$ ,  $df = 82$ ;  $p$  is less than .05) exists which indicates that high-achieving girls are comparatively more dominant ( $M = 19.86$ ;  $S.D. = 3.38$ ) than high-achieving boys ( $M = 17.46$ ,  $S.D. = 4.63$ ). Thus, they claim superiority over boys. The high girls have also scored more ( $M = 19.86$ ;  $S.D. = 3.38$ ) than the girls in the low group ( $M = 18.00$ ;  $S.D. = 4.20$ ). Although, the difference between the means of the two sub-groups is not statistically significant; yet, this, atleast, helps us understand that high-achieving girls cherish a sense of dominance and superiority over low-achieving girls, no





matter howsoever less intensity it may have. On the other hand, boys & - whether they are high achievers or low ones- do not differ significantly from one another, which goes to indicate that they are equally dominant, irrespective of their academic achievement. This, if we go deep into the problem, can be owed to the fact that low-achieving boys compensate their sense of dominance by displaying their superiority in non-academic areas, e.g., games and sports. Boys and girls, taken together in high and low sub-groups, no significant difference whatsoever ( $t = .09$ ,  $df = 188$ ) exists. Also, no such difference exists between the low boys and girls, which leads us to the fact that low-achieving boys and girls are equally dominant & and both of the sexes, in this sub-group, & try to compensate it by way of participation in non-academic assignments. Thus, it is safe to infer that high and low achievers generally do not differ significantly from one another with regard to their dominant behaviour.

Studies in the field report similar as well as contradictory results, Astington (2, Pp. 235-236), for instance, arrived at the conclusion that no evidence was available to support the view that unsuccessful students, (or, low achievers) sought refuge in dominance for their lack of school success. But, Rushton (27, p.183), on the other hand, identified a positive relationship between dominance and academic achievement (here, arithmetic where  $r = .145$ , and, English where  $r = .149$ ). That is to say,



the high achievers were found to have scored on dominance more in comparison to the low achievers. Flaherty and Bentzel (11, p. 410), too, arrived at similar results when they reported a highly significant t-value in favour of high achievers for the trait dominance.

In India Vidya Bhargava (5 Pp. 85-86) did not observe any significant relationship between dominance and academic achievement. Linde (30, Pp. 92-93) reported similar results as it was noted that no significant relationship, whatsoever, between dominance and academic achievement ( $r = .01$ ) exists.

#### PARANOID TENDENCY.

There exists a significant difference ( $t = 2.45$ ,  $df = 166$ ;  $p$  is less than .05) between the mean scores of the total group of high-achieving boys and girls, and that of low-achieving boys and girls. Also, a significant difference ( $t = 3.00$ ,  $df = 54$ ,  $p$  is less than .01) exists between high and low achieving females. Except these two group-categories, there exists no significant difference ( $t = .99$ ,  $df = 110$ ) between high and low achievers in any of the three group-categories. The high and low boys are equal in respect of the presence of paranoid tendency in them. Similarly, high boys and girls do not differ significantly ( $t = 1.50$ ,  $df = 82$ ) from one another, although high-achieving boys suffer from paranoia a bit more than the



high-achieving girls. So also, low-achieving boys and girls are equal victims of paranoia ( $t = .65$   $df = 82$ ). But it is clear that low girls suffer from paranoia more than the low boys. Thus, it is reasonable to infer that most of the low-achieving girls view the world hostile & towards them and consider others responsible for their failure. It equally holds good also to the total group of boys and girls, in high and low sub-groups. Shaw and Black (20, p. 124) probably confirmed the same idea when they concluded, "There seems to be fairly clear-cut indication that the (high)achievers tend to deny aggressively responsibility for their own inadequate behaviour, while the underachievers admit their guilt but claim that circumstances beyond their control were responsible for what happened." The low-achievers have a tendency to reject the self, to feel inadequate, and to conceive of the world as hostile and dangerous. Thus, they have what Rokeach (28, p. 76) has termed a "paranoid out-look on life" and will always cherish a sense of guilt. It is, therefore, no wonder to believe that their paranoid outlook affects their academic achievement a lot.

#### DEPRESSIVE TENDENCY:

A significant difference exists between the total group of male and female high achievers and that of male and female low achievers, as magnitude of the difference is found to be significant ( $t = 3.03$ ,  $df = 166$ ;  $p$  is less than



.01). But little or no difference exists between the mean scores of high and low boys. But, again, high-achieving girls differ significantly ( $t = 3.26$ ,  $df = 64$ ;  $p$  is less than .01) from the low-achieving ones. The similar trend is visible between the high-achieving boys and girls where the former differ significantly ( $t = 2.24$ ,  $df = 62$ ,  $p$  is less than .05) from the latter i.e. from the low-achieving girls. But, difference between the low boys and girls ( $t = .11$ ,  $df = 62$ ) has disappeared entirely.

Thus, it is clear that high achievers are less depressive and passive than the low achievers. And the credit of being less depressive goes more to the high girls than to the boys in the high group, although low boys and girls are equally depressive. The probable reason is that the high girls than male high achievers suffer from the feeling of heavier responsibilities and the grim future that awaits them after the completion of their studies more than do the female high achievers.

#### EMOTIONAL INSTABILITY:

It is revealing to learn that the total group of achievers in the high and low subgroups, all other four groups stand on the same footing with regard to their emotional adjustment in the school. Beyond doubt, there exists a significant difference ( $t = 2.12$ ,  $df = 166$ ;  $p$  is less than .05) between the total group of the male and female high achievers and the male and female low





achievers. But, boys in the high group do not differ significantly ( $t = .98$ ,  $df = 110$ ) from those in the low group; similarly girls in the high group, as Table 10 reveals, do not differ significantly ( $t = 1.93$ ,  $df = 54$ ) from the low-achieving girls, although their mean scores indicate that the high-achieving girls ( $M = 12.24$ ;  $S.D. = 5.13$ ) are emotionally more stable than the low-achieving ones ( $M = 14.86$ ;  $S.D. = 5.02$ ). The computed  $t$ -values indicate that the high boys and girls do not differ significantly ( $t = .05$ ,  $df = 82$ ) from one another, and so with male and female low achievers as indicated by  $t = 1.7$ ,  $df = 82$ ).

But one thing is very clear and that is that the high achievers, irrespective of sex differences, are emotionally better adjusted as compared to the low achievers. Other studies corroborate the present results. Hackett (14, pp. 68-69), for instance, found that low achievers were, "emotionally responsive to their environments and were compelled to do something about dispelling their tensions. The tempo of their life seemed to be faster than that of the high achievers, although their activity was not necessarily productively oriented. (They) were rather sensitive, feeling that emotions should be concealed as a sign of weakness." The high achievers, on the other hand, were found "emotionally less easily aroused." They were found to be able "to live at a more relaxed, confident tempo." Carter (12, p. 278) found that



"over-achievers ..... were generally better adjusted socially and emotionally", and, "over-achievers are happier, happier in school, more self-confident, and have a better morale." Genti, (6, p.188), too, has noticed similar trend in this regard. "Unstable and maladjusted students," he observed, "have been found to do less well in their studies in proportion to their intelligence than have students who were well balanced."

#### INTROVERSION:

Except boys, in the high and low sub-groups, other group categories show no significant difference between the mean scores of their high and low sub-groups on introversion. No doubt, a significant difference exists between the means of high and low-achieving boys ( $t = 2.18$ ,  $df = 110$ ;  $p$  is less than .05). But, there exists no significant difference ( $t = 1.00$ ,  $df = 166$ ) between the total group of male and female high achievers, and that of male and female low achievers; similarly, no significant difference, whatsoever, ( $t = .02$ ,  $df = 54$ ) exists between high and low achieving girls. Also, male and female high achievers do not differ significantly ( $t = 1.51$ ,  $df = 82$ ) from one another in respect of their introverted nature, and, similarly, male and female low achievers are equally introverted ( $t = .37$ ,  $df = 82$ ).

Thus, it needs special caution to infer that highly introverted students are high achievers or vice versa. In the present study, high-achieving boys differ



significantly from the low-achieving ones. That is to say, high boys are less introverted ( $M$  12.50;  $S.D.$  4.94) as compared to the low-achieving ones ( $M$  16.61,  $S.D.$  5.30). Maybe, male low achievers hesitate to disclose their problems before their teachers and class-mates and nourish them in their heart of heart which, consequently, may may create hurdles in their academic achievement. On the other hand, male high achievers, maybe, readily consult their teachers and classmates for necessary help, and thus they have better chances to achieve academically. But, it would be safer not to consider it the *prima facie* reason, underlying high or low academic achievement.

Like the results obtained in the present study, other studies, conducted both in India as well as abroad, present contradictory results. Rushton (27, p.183), for instance, reported that introverted students are generally low achievers. Vidya Bhargava (5, Pp.85-86) too, observed a significant relationship between high academic achievement and extroverted students who occupy significant position in their group. Devadasen (8, Pp.81-84), on the other hand, reported that extroverted students stand bleak chances for better academic achievement. But, Sinha reported "no relationship between introversion - extroversion and academic achievement as the  $r$  value - .8 is not significant at .05 level." (30, Pp.92-93).

Before concluding, one thing that strikes the



reader's mind is that the low boys and girls are equal on all the eight personality traits. Thus, it is reasonable to infer that low boys and girls are identical in respect of their personality make-up irrespective of their sex differences.

A summary of the conclusions, inferred from its findings, both in their own right and as related to the findings of other researches in the field, is presented in the succeeding Chapter captioned "Retrospect and Prospect."





**PART III**



## CHAPTER V.

## APPENDIX AND PRO. PACT.



## MAIN FINDINGS:

7 number of revealing but interesting findings have emerged from the present study :

(1) The high achieving students, taken together, were found to be more active, persistent, hard-working, and intensive in their efforts than the low achieving students. This is the case for both boys and girls.

(2) The high-achieving boys were found to be more impulsive and hurried in speech, and cheerful by temperament, as compared to those falling in the low group. But, the high achievers, as a whole, did not differ significantly from that of low achievers in respect of hypomanic temperament.

(3) The total group of high achievers was noted to possess positive attitude towards moral values significantly higher than that of low achievers. On one hand, the high/female-achievers were found to have a positive attitude towards moral values significantly higher than the high male high achievers; and, on the other, they were noted to have significantly higher positive attitude towards



moral values as compared to the female low achievers.

(4) The high achievers, as a whole, were reported to be more dominant than those in the low group. It was also observed that the female high achievers showed more frequent dominant behaviour than the male high achievers.

(5) Paranoid tendency was identified more in the total group of low achievers than in the total of high achievers. But, high achieving males, studied separately, were found not to differ significantly from boys in the low group.

(6) The high achievers appeared to be less depressive as compared to the low achievers. It was also observed that the female high achievers were less depressive than the male high achievers.

(7) The high achievers were found to be emotionally more stable and less easily aroused than those in the low group. But male and female high achievers, studied separately, did not differ significantly from male and female low achievers in respect of emotional instability.

(8) The high achievers, as a whole, did not differ significantly from those in the low group on introversion. But it was also revealed that whereas the high-achievers (boys) were reported to be less introverted in behaviour than the low achievers (boys), the female high achievers seemed identical with the low-achieving females in respect of their introverted behaviour.





### LIMITATIONS OF THE STUDY:

The term 'personality' is comprehensive, yet in the present study it has been restricted to only eight personality characteristics, viz, Activity, Hypomanic Temperament, Attitude towards Moral Values, Dominance, Paranoid Tendency, Depressive Tendency, Emotional Instability, and Introversion.

It is a study, as indicated earlier, of 168 students of Class IX (112 boys and 56 girls) for whom examination marks alone are treated as index of achievement. A perusal of the relevant literature shows that many researchers have relied on these marks. In addition, the curricular group with which a pupil is competing may be comparatively a less select group academically and consequently it may give rise to his good achievement, and vice versa. In fact, the achievement in academic sphere is a function of all that the individual stands for and the various characteristics of the social setting. Factors like different types of teachers, variety of instructional programmes are too important to be excluded from the criterion of achievement.

There is need to have some reservations whenever conclusions formed on the basis of such marks are taken as valid. The limitation involved in relating personality variables to or predicting them from the achievement on the basis of examination marks become intricate when such factors as (a) heterogeneity of standards in



marking and (b) errors of measurement or prediction, involved, for instance, in stretching of results over a long period of time on the basis of the marks of one or two occasions are overlooked.

In addition to the above limitations of a general kind, the present study suffers from a number of specific disadvantages.

(1) Dr. Sen's Personality Traits Inventory has its own limitations as the personality traits or characteristics that are included in this inventory simply cover an aspect of the total complex that is labelled as 'Personality'.

(2) This investigation has been carried out at an exploratory level. Therefore, the results, obtained from this study may be verified by large scale research at a later stage.

#### CONCLUSIONS:

The analyzed data warrant these general provisional conclusions:

(1) It can safely be concluded that industry, persistence, effort, and intensive work (here, represented by Activity) prove to be determining factors in raising the level of one's academic achievement.

(2) Positive and healthy attitude towards moral values



also affects one's academic achievement (especially, in case of girls) by raising it from the existing level.

(3) Paranoid Tendency proves to be a deteriorating factor in lowering the level of one's academic achievement. It holds more true in case of low female achievers.

(4) Depression goes a long way in adversely affecting the students' (particularly, low achieving girls) academic achievement, i.e., the more a student is depressive, the lesser does he or she achieve academically.

(5) Emotional maladjustment contributes towards lowering down students' achievement in the school, irrespective of their sex differences.

(6) Introversion slows down the students' academic achievement (particularly, that of the male low achievers).

#### IMPLICATIONS AND USEFULNESS OF THE STUDY:

A number of significant implications emanate from the foregoing conclusions. They may be listed as follows :

(1) The teachers should see that such an atmosphere is created in the class-room that the low achievers start deriving interest in their studies and thereby becoming more industrious and hard-working.

(2) The principal and teachers should make efforts



to create such an atmosphere in which every student, irrespective of sex differences, feels himself or herself more cheerful, free, and easy. The principal and the teachers may, in the first place, identify low achievers and then provide congenial atmosphere so as to infuse a new spirit of work in them.

(3) In order that a positive and healthy attitude towards moral values is created in the students, brief life-histories of the great persons may be told to the students in the daily morning gatherings. Further, the teachers should prepare a code of conduct for themselves and strictly adhere to it.

(4) An attempt should be made to eliminate unreasonable and vain fears that haunt the low achievers' minds. A sense of security should be cultivated and developed in them so that classroom becomes a happy experience for them.

(5) The teacher should make his teaching interesting and should plan the matter in the light of the students' needs. It will help the teachers in removing lethargy and mental inertia, generally prevailing among low achievers.

(6) Emotionally unstable students are, as a rule, more sensitive than those who are emotionally stable. Therefore, the teacher should, in the first place, try to know the causes leading to emotional instability and in the light





of the discovered causes he should provide due guidance with love and affection to such students.

(7) Further, the teacher should have personal sympathy for needy students. He should identify those children who are socially withdrawn. He should ask, for instance, such students to express their views on a topic before his classmates. Such students may also be asked to participate in activities like reciting poems, playing a role in dramas, and similar other activities. The teacher should see that these students do not feel any kind of hesitation in approaching him in connection with their problems - academic or otherwise.

#### SUGGESTIONS FOR FURTHER RESEARCH:

Since it is an acknowledged fact that educational research is yet in its infancy in India, there is a wide scope for further studies in this field of great significance. Some broad suggestions regarding further studies are given below:

(1) A study into the relationship between scholastic achievement and personality factors like motivational and aspirational level, interest, and aptitude may be undertaken at different educational levels, for instance, at high school level, college level, and so on.

(2) A study as how the values of parents affect the



child's personality make-up and thereby his academic achievement may be conducted.

(3) It would really be a worth-while attempt to study how the differences in the outcomes of class-room experiences have their origins in the out-of-school-behaviour.

(4) In order to ensure dependable results, achievement indices of the pupils for the previous three-four years as well as their achievement indices in extra curricular activities may also be taken into account.

(5) A study on the relationship between academic achievement and personality traits other than those included in the present study (e.g. Self-Sufficiency and the like) may be undertaken.

(6) Other techniques (e.g. projective techniques) may be used to identify relationship between personality characteristics and academic achievements.

(7) While it is true that various factors of individual differences determine academic achievement, little or no attempts have been made in our country to specify the processes which help in translating the individual differences into differences in achievement. Hence, this field offers much promise for the prospective researchers.



## PART IV



## APPENDICES





APPENDIX-A.

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APPENDIX - D.

Examination Marks and I.Q.'s of 168 pupils into the two sex-groups with two equated sub-groups in each.

| S.No.                      | Code No. <sup>8</sup> | Examination Marks. | I.Q.'s |
|----------------------------|-----------------------|--------------------|--------|
| <u>I. BOYS-HIGH GROUP.</u> |                       |                    |        |
| 1.                         | BI-a 26               | 414                | 120    |
| 2.                         | BII-a d 20            | 371                | 110    |
| 3.                         | BII-b1                | 368                | 110    |
| 4.                         | BI,b2                 | 367                | 126    |
| 5.                         | BI,a28                | 366                | 101    |
| 6.2.                       | BII,a27               | 360                | 100    |
| 7 2.                       | BII,a39               | 358                | 93     |
| 8 2.                       | BII,a12               | 357                | 129    |
| 9.10.                      | BII,b13,              | 351                | 103    |
| 10.11.                     | BI,b1                 | 350                | 106    |
| 11.12.                     | BII,e3,               | 349                | 99     |
| 12.13.                     | BII,e11               | 348                | 88     |
| 13.                        | BII,a26               | 347                | 94     |
| 14.                        | BII,e10               | 344                | 77     |
| 15.                        | BII,d13,              | 341                | 113,   |
| 16.                        | BI,B10,               | 339,               | 110,   |
| 17.                        | BII,e42               | 339                | 76     |
| 18.                        | BI,c-10               | 337                | 106    |
| 19.                        | BII,d32               | 333                | 91     |
| 20.                        | BI,b4                 | 331                | 123    |
| 21.                        | BI,a6                 | 330                | 101    |
| 22.                        | BI,e1                 | 327                | 120    |



|     |          |     |     |
|-----|----------|-----|-----|
| 23. | BII, a4  | 127 | 104 |
| 24. | BI, a-15 | 324 | 127 |
| 25. | BII, b3, | 322 | 80  |
| 26. | BII, e2, | 321 | 103 |
| 27. | BII, d14 | 320 | 132 |
| 28; | BI, c14  | 319 | 126 |
| 29. | BI, b25  | 317 | 115 |
| 30. | BII, d15 | 315 | 118 |
| 31. | BI, b14  | 312 | 112 |
| 32. | BI, c29  | 312 | 117 |
| 33. | BI, c2   | 307 | 112 |
| 34. | BI, a2   | 305 | 124 |
| 35. | BII, d8  | 304 | 91  |
| 36. | BI, c15  | 303 | 112 |
| 37. | BII, b6  | 299 | 106 |
| 38; | BII, b7  | 297 | 100 |
| 39. | BII, e6  | 297 | 93  |
| 40. | BII, c14 | 294 | 84  |
| 41. | BIIa3    | 294 | 119 |
| 42. | BII, d18 | 293 | 93  |
| 43. | BI, b7   | 292 | 116 |
| 44. | BI, a30  | 291 | 120 |
| 45. | BII, e17 | 287 | 102 |
| 46. | BI, a22  | 287 | 119 |
| 47. | BII, e20 | 285 | 90  |
| 48. | BII, e1  | 285 | 101 |
| 49. | BI, b19  | 282 | 121 |
| 50. | BII, e25 | 281 | 101 |





|     |                              |     |      |
|-----|------------------------------|-----|------|
| 51. | BII,e13                      | 230 | 70   |
| 52. | BI,b28                       | 277 | 117  |
| 53. | BII,b10                      | 273 | 86   |
| 54. | BII,d30                      | 273 | 84   |
| 55. | BII,e34                      | 273 | 99   |
| 56. | BII,c5                       | 272 | 130  |
| 57. | <u>II. Boys - Low Group.</u> |     |      |
| 57. | BII,d22                      | 206 | 120  |
| 58. | BII,d17                      | 199 | 110  |
| 59. | BII,e38                      | 181 | 110  |
| 60. | BII,c7                       | 189 | 126  |
| 61. | BII,a18                      | 213 | 1101 |
| 62. | BI,b16                       | 184 | 97   |
| 63. | BII,e41                      | 181 | 95   |
| 64. | BI,a25                       | 183 | 130  |
| 65. | BII,e-16                     | 215 | 130  |
| 66. | BII,a11                      | 213 | 108  |
| 67. | BII,a16                      | 206 | 197  |
| 68. | BII,e26                      | 213 | 87   |
| 69. | BI,c23                       | 202 | 96   |
| 70. | BII,e18                      | 213 | 76   |
| 71. | BII,e38                      | 216 | 112  |
| 72. | BII,c16                      | 178 | 111  |
| 73. | BII,a1                       | 173 | 76   |
| 74. | BII,e16                      | 194 | 108  |
| 75. | BII,e44                      | 169 | 92   |
| 76. | BII,e33                      | 210 | 124  |



|      |          |     |     |
|------|----------|-----|-----|
| 77.  | BII,a14  | 177 | 104 |
| 78.  | BI,a23   | 192 | 120 |
| 79.  | BII,a10  | 199 | 108 |
| 80.  | BII,e28  | 178 | 126 |
| 81.  | BII,a13  | 199 | 80  |
| 82.  | BII,c9   | 217 | 102 |
| 83.  | BI,c18   | 203 | 132 |
| 84.  | BII,a24  | 220 | 126 |
| 85.  | BII,e15  | 207 | 117 |
| 86.  | BI,c24   | 184 | 118 |
| 87.  | BII,a30  | 197 | 113 |
| 88.  | BI,c12   | 210 | 117 |
| 89.  | BII,a17  | 160 | 112 |
| 90.  | BI,b17   | 202 | 124 |
| 91.  | BII,d23  | 152 | 194 |
| 92.  | BII,d138 | 180 | 113 |
| 93.  | BI,c25   | 171 | 107 |
| 94.  | BII,a20  | 175 | 96  |
| 95.  | BII,e21  | 219 | 93  |
| 96.  | BII,a32  | 194 | 80  |
| 97.  | BII,d33  | 158 | 119 |
| 98.  | BII,a19  | 142 | 93  |
| 99.  | BII,b17  | 212 | 116 |
| 100. | BII,e33  | 181 | 120 |
| 101. | BII,e7   | 220 | 102 |
| 102. | BI,b6    | 208 | 119 |
| 103. | BI,c25   | 199 | 80  |



|      |                                |   |     |     |
|------|--------------------------------|---|-----|-----|
| 104. | BII,c24                        | B | 183 | 104 |
| 105. | BII,d40                        |   | 195 | 121 |
| 106. | BI,c22                         |   | 171 | 102 |
| 107. | BII,a5                         |   | 210 | 70  |
| 108. | BII,d9                         |   | 210 | 116 |
| 109. | BII,M3                         |   | 216 | 86  |
| 110. | BII,a22                        |   | 164 | 84  |
| 111. | BI,c38                         |   | 193 | 93  |
| 112. | BI,c9                          |   | 191 | 130 |
| ***  | <u>III,Girls - High Group.</u> |   |     |     |
| 113. | Ga-29                          |   | 463 | 107 |
| 114. | Ga-27                          |   | 462 | 73  |
| 115. | Ga-4                           |   | 464 | 93  |
| 116. | G-b-6                          |   | 440 | 131 |
| 117. | Ga-6                           |   | 435 | 110 |
| 118. | Ga-19                          |   | 434 | 113 |
| 119. | Gb-6                           |   | 425 | 104 |
| 120. | Ga-1                           |   | 423 | 93  |
| 121. | Ga-2                           |   | 423 | 108 |
| 122. | Ga-14                          |   | 414 | 110 |
| 123. | Ga-12                          |   | 412 | 104 |
| 124. | Ga-8                           |   | 408 | 71  |
| 125. | Gc-6                           |   | 406 | 84  |
| 126. | Gb-31                          |   | 403 | 88  |
| 127. | Ga-7                           |   | 396 | 101 |
| 128. | Gb-1                           |   | 394 | 87  |
| 129. | Gb-40                          |   | 389 | 115 |



|      |                             |     |     |
|------|-----------------------------|-----|-----|
| 130. | Gb-27                       | 387 | 81  |
| 131. | Ga-9                        | 385 | 110 |
| 132. | Ga-11                       | 380 | 87  |
| 133. | Gb-15                       | 370 | 80  |
| 134. | Gc-5                        | 359 | 90  |
| 135. | Gb-23                       | 358 | 101 |
| 136. | Ga-21                       | 357 | 74  |
| 137. | Gb-32                       | 352 | 74  |
| 138. | Ga-3                        | 342 | 85  |
| 139. | Gb-26                       | 337 | 117 |
| 140. | Gb-29                       | 336 | 126 |
| 141. | <u>IV. Girls Low Group.</u> |     |     |
| 141. | Gc-11                       | 255 | 105 |
| 142. | Gb-19                       | 191 | 73  |
| 143. | Gb-34                       | 159 | 92  |
| 144. | Gc-12                       | 247 | 131 |
| 145. | Gb-3                        | 227 | 110 |
| 146. | Ga-33                       | 213 | 113 |
| 147. | Gb-9                        | 237 | 103 |
| 148. | Gb-10                       | 225 | 92  |
| 149. | Gb-20                       | 247 | 110 |
| 150. | Ga-31                       | 205 | 110 |
| 151. | Ga-24                       | 250 | 104 |
| 152. | Gc-23                       | 190 | 71  |
| 153. | Ga-37                       | 246 | 80  |
| 154. | Gc-24                       | 255 | 91  |
| 155. | Ga-30                       | 217 | 102 |
| 156. | Gb-12                       | 226 | 87  |
| 157. | Gc-30                       | 182 | 116 |





|      |         |     |     |
|------|---------|-----|-----|
| 153. | Gb-13   | 180 | 82  |
| 153. | Gb-41   | 241 | 110 |
| 130  | Ga-36   | 196 | 87  |
| 161. | Gc-23   | 204 | 80  |
| 162. | Gc-27   | 226 | 90  |
| 163. | Gc-32   | 174 | 102 |
| 134. | Gb-13   | 206 | 74  |
| 165. | s Gb-37 | 174 | 76  |
| 166. | Ga-28   | 206 | 88  |
| 167. | Gb-11   | 223 | 117 |
| 168. | Gc-29   | 171 | 127 |

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0 0 0 1



Appendix-E.

Scores on eight personality characteristics of 168 students.

| S. Code<br>No. No.*    | Acti-<br>vity. | Hypo-<br>manic<br>tempera-<br>ment. | Attitude<br>Towards<br>moral<br>values. | Domi-<br>nance. | Para-<br>-noid<br>tende-<br>-ncy. | Depre-<br>ssive<br>Tende-<br>-ncy. | Emo-<br>tional<br>Insta-<br>bility | Intro-<br>ver-<br>sion. |
|------------------------|----------------|-------------------------------------|-----------------------------------------|-----------------|-----------------------------------|------------------------------------|------------------------------------|-------------------------|
| <b>BOYS HIGH GROUP</b> |                |                                     |                                         |                 |                                   |                                    |                                    |                         |
| 1.                     | 23             | 19                                  | 27                                      | 16              | 20                                | 16                                 | 20                                 | 24                      |
| 2.                     | 22             | 20                                  | 24                                      | 16              | 28                                | 10                                 | 12                                 | 16                      |
| 3.                     | 26             | 20                                  | 26                                      | 22              | 8                                 | 8                                  | 10                                 | 4                       |
| 4.                     | 23             | 16                                  | 28                                      | 18              | 24                                | 20                                 | 10                                 | 12                      |
| 5.                     | 10             | 16                                  | 22                                      | 24              | 18                                | 22                                 | 16                                 | 16                      |
| 6.                     | 18             | 16                                  | 24                                      | 10              | 20                                | 13                                 | 11                                 | 12                      |
| 7.                     | 16             | 16                                  | 18                                      | 12              | 16                                | 24                                 | 6                                  | 18                      |
| 8.                     | 24             | 14                                  | 30                                      | 16              | 10                                | 14                                 | 2                                  | 6                       |
| 9.                     | 24             | 18                                  | 24                                      | 13              | 20                                | 14                                 | 6                                  | 8                       |
| 10.                    | 26             | 18                                  | 25                                      | 12              | 18                                | 8                                  | 10                                 | 13                      |
| 11.                    | 26             | 21                                  | 18                                      | 14              | 13                                | 19                                 | 11                                 | 16                      |
| 12.                    | 22             | 14                                  | 18                                      | 19              | 24                                | 16                                 | 14                                 | 15                      |
| 13.                    | 12             | 15                                  | 20                                      | 11              | 24                                | 13                                 | 16                                 | 16                      |
| 14.                    | 22             | 24                                  | 18                                      | 12              | 18                                | 14                                 | 8                                  | 16                      |
| 15.                    | 22             | 17                                  | 24                                      | 22              | 14                                | 18                                 | 6                                  | 8                       |
| 16.                    | 28             | 24                                  | 27                                      | 20              | 10                                | 20                                 | 6                                  | 12                      |
| 17.                    | 26             | 26                                  | 24                                      | 24              | 16                                | 23                                 | 18                                 | 23                      |
| 18.                    | 24             | 20                                  | 24                                      | 21              | 19                                | 12                                 | 13                                 | 10                      |
| 19.                    | 23             | 22                                  | 22                                      | 19              | 20                                | 27                                 | 20                                 | 19                      |
| 20.                    | 22             | 22                                  | 24                                      | 14              | 24                                | 20                                 | 10                                 | 16                      |
| 21.                    | 22             | 10                                  | 28                                      | 12              | 4                                 | 12                                 | 12                                 | 6                       |
| 22.                    | 22             | 14                                  | 22                                      | 20              | 16                                | 10                                 | 14                                 | 12                      |



|    |    |    |    |    |    |    |    |
|----|----|----|----|----|----|----|----|
| 26 | 14 | 26 | 20 | 16 | 12 | 7  | 6  |
| 12 | 3  | 26 | 10 | 18 | 26 | 16 | 22 |
| 26 | 20 | 22 | 16 | 24 | 20 | 10 | 12 |
| 22 | 10 | 16 | 16 | 22 | 24 | 17 | 12 |
| 28 | 24 | 28 | 22 | 20 | 20 | 14 | 14 |
| 24 | 18 | 28 | 23 | 20 | 12 | 14 | 10 |
| 18 | 18 | 24 | 17 | 26 | 18 | 25 | 25 |
| 16 | 14 | 23 | 14 | 16 | 21 | 11 | 14 |
| 28 | 18 | 26 | 22 | 16 | 20 | 6  | 14 |
| 24 | 20 | 26 | 13 | 14 | 15 | 14 | 10 |
| 26 | 10 | 22 | 10 | 8  | 10 | 2  | 4  |
| 22 | 14 | 22 | 22 | 10 | 18 | 10 | 14 |
| 26 | 18 | 22 | 16 | 22 | 14 | 11 | 14 |
| 28 | 10 | 22 | 8  | 8  | 10 | 4  | 4  |
| 36 | 20 | 24 | 16 | 20 | 14 | 18 | 18 |
| 24 | 16 | 24 | 20 | 18 | 12 | 8  | 8  |
| 24 | 22 | 24 | 21 | 16 | 10 | 17 | 16 |
| 24 | 14 | 18 | 14 | 14 | 4  | 6  | 6  |
| 28 | 22 | 24 | 18 | 18 | 14 | 12 | 18 |
| 26 | 28 | 26 | 18 | 23 | 16 | 12 | 10 |
| 28 | 18 | 26 | 18 | 24 | 10 | 10 | 12 |
| 22 | 22 | 22 | 18 | 16 | 22 | 23 | 16 |
| 28 | 20 | 24 | 16 | 8  | 16 | 10 | 8  |
| 24 | 18 | 24 | 20 | 20 | 16 | 10 | 18 |
| 20 | 19 | 22 | 8  | 21 | 16 | 20 | 18 |
| 30 | 16 | 26 | 19 | 16 | 13 | 7  | 10 |
| 30 | 26 | 24 | 24 | 10 | 16 | 8  | 14 |
| 14 | 12 | 19 | 16 | 12 | 8  | 14 | 8  |
| 28 | 20 | 22 | 14 | 12 | 18 | 12 | 8  |



|    |    |    |    |    |    |    |    |
|----|----|----|----|----|----|----|----|
| 26 | 22 | 24 | 24 | 22 | 20 | 20 | 16 |
| 20 | 12 | 18 | 16 | 20 | 19 | 12 | 16 |
| 19 | 21 | 20 | 12 | 19 | 23 | 11 | 20 |
| 30 | 16 | 24 | 18 | 16 | 20 | 10 | 18 |
| 19 | 24 | 25 | 21 | 16 | 14 | 16 | 9  |

LOW GROUP/

|    |    |    |    |    |    |    |    |
|----|----|----|----|----|----|----|----|
| 9  | 13 | 14 | 16 | 19 | 22 | 16 | 11 |
| 20 | 18 | 28 | 18 | 16 | 18 | 14 | 18 |
| 16 | 18 | 16 | 26 | 24 | 18 | 8  | 4  |
| 20 | 14 | 23 | 14 | 20 | 22 | 15 | 14 |
| 20 | 12 | 26 | 22 | 22 | 20 | 16 | 12 |
| 24 | 24 | 28 | 22 |    |    |    |    |
| 24 | 16 | 24 | 20 | 23 | 20 | 22 | 26 |
| 8  | 14 | 14 | 14 | 16 | 27 | 11 | 14 |
| 16 | 16 | 27 | 18 | 22 | 20 | 16 | 12 |
| 22 | 18 | 22 | 13 | 20 | 17 | 16 | 20 |
| 19 | 16 | 12 | 16 | 16 | 20 | 22 | 25 |
| 22 | 12 | 24 | 20 | 10 | 18 | 14 | 8  |
| 12 | 14 | 16 | 6  | 21 | 17 | 12 | 16 |
| 24 | 12 | 20 | 22 | 20 | 24 | 16 | 18 |
| 26 | 18 | 24 | 18 | 20 | 12 | 12 | 18 |
| 20 | 26 | 20 | 20 | 26 | 16 | 21 | 16 |
| 18 | 22 | 21 | 18 | 17 | 16 | 19 | 19 |
| 24 | 18 | 24 | 16 | 16 | 14 | 6  | 10 |
| 26 | 24 | 22 | 18 | 24 | 16 | 14 | 16 |
| 22 | 18 | 30 | 22 | 14 | 12 | 10 | 18 |
| 11 | 11 | 18 | 14 | 17 | 11 | 14 | 12 |
| 25 | 14 | 28 | 16 | 21 | 12 | 11 | 10 |
| 28 | 20 | 24 | 16 | 25 | 16 | 14 | 8  |
| 24 | 16 | 28 | 24 | 16 | 10 | 8  | 10 |





|    |    |    |    |    |    |    |    |
|----|----|----|----|----|----|----|----|
| 19 | 8  | 25 | 16 | 16 | 12 | 7  | 8  |
| 26 | 18 | 26 | 16 | 10 | 16 | 8  | 8  |
| 27 | 23 | 26 | 20 | 22 | 16 | 16 | 20 |
| 21 | 20 | 23 | 16 | 19 | 13 | 16 | 13 |
| 26 | 22 | 26 | 24 | 14 | 12 | 10 | 2  |
| 13 | 12 | 20 | 18 | 10 | 18 | 14 | 12 |
| 21 | 7  | 13 | 19 | 12 | 19 | 7  | 13 |
| 22 | 14 | 23 | 22 | 24 | 12 | 6  | 10 |
| 21 | 16 | 21 | 19 | 23 | 17 | 13 | 15 |
| 30 | 13 | 16 | 19 | 13 | 17 | 16 | 18 |
| 25 | 16 | 20 | 19 | 14 | 14 | 16 | 12 |
| 23 | 16 | 20 | 16 | 15 | 14 | 21 | 22 |
| 22 | 12 | 20 | 16 | 20 | 26 | 7  | 12 |
| 19 | 18 | 23 | 13 | 16 | 17 | 7  | 9  |
| 26 | 30 | 26 | 20 | 23 | 28 | 24 | 26 |
| 22 | 18 | 24 | 14 | 12 | 20 | 10 | 10 |
| 21 | 14 | 21 | 20 | 20 | 20 | 10 | 24 |
| 18 | 14 | 18 | 23 | 17 | 20 | 12 | 24 |
| 24 | 16 | 26 | 18 | 15 | 18 | 14 | 16 |
| 14 | 12 | 18 | 14 | 18 | 20 | 10 | 12 |
| 22 | 14 | 22 | 22 | 19 | 20 | 14 | 18 |
| 24 | 16 | 26 | 14 | 18 | 10 | 6  | 10 |
| 24 | 18 | 21 | 24 | 12 | 13 | 8  | 13 |
| 28 | 18 | 23 | 17 | 16 | 19 | 16 | 14 |
| 16 | 16 | 19 | 20 | 17 | 24 | 15 | 11 |
| 24 | 24 | 25 | 19 | 21 | 19 | 18 | 22 |
| 22 | 24 | 24 | 24 | 20 | 14 | 8  | 16 |
| 16 | 22 | 24 | 20 | 18 | 18 | 14 | 18 |



|      |    |    |    |    |    |    |    |    |
|------|----|----|----|----|----|----|----|----|
| 108. | 28 | 20 | 24 | 20 | 24 | 22 | 10 | 10 |
| 109. | 20 | 18 | 24 | 18 | 20 | 20 | 18 | 14 |
| 110. | 24 | 22 | 22 | 16 | 22 | 16 | 10 | 14 |
| 111. | 24 | 14 | 24 | 12 | 24 | 24 | 8  | 10 |
| 112. | 20 | 20 | 26 | 18 | 18 | 13 | 14 | 10 |

GIRLS HIGH GROUPS.

|      |    |    |    |    |    |       |      |    |
|------|----|----|----|----|----|-------|------|----|
| 113. | 26 | 12 | 24 | 18 | 14 | 14    | 6    | 8  |
| 114. | 24 | 16 | 25 | 22 | 12 | 14    | 6    | 10 |
| 115. | 28 | 14 | 28 | 23 | 18 | 18    | 13   | 16 |
| 116. | 22 | 14 | 26 | 16 | 18 | 18    | 12   | 8  |
| 117. | 24 | 14 | 28 | 20 | 12 | 14    | 17   | 18 |
| 118. | 26 | 14 | 28 | 13 | 10 | 4     | 7    | 14 |
| 119. | 26 | 14 | 22 | 26 | 16 | 11    | 16   | 11 |
| 120. | 8  | 18 | 24 | 18 | 10 | 16    | 11   | 16 |
| 121. | 28 | 14 | 26 | 20 | 16 | 14    | 14   | 14 |
| 122. | 26 | 26 | 26 | 22 | 22 | 16    | 2 14 | 16 |
| 123. | 26 | 16 | 28 | 18 | 18 | 14    | 18   | 18 |
| 124. | 26 | 22 | 28 | 18 | 24 | 18    | 20   | 22 |
| 125. | 24 | 23 | 22 | 18 | 26 | 9     | 14   | 17 |
| 126. | 22 | 26 | 28 | 23 | 16 | 10    | 9    | 6  |
| 127. | 26 | 20 | 26 | 20 | 10 | 14    | 9    | 18 |
| 128. | 26 | 18 | 28 | 18 | 14 | 14 18 | 18   | 17 |
| 129. | 30 | 14 | 30 | 24 | 18 | 12    | 14   | 6  |
| 130. | 30 | 20 | 28 | 22 | 12 | 13    | 10   | 10 |
| 131. | 28 | 14 | 20 | 14 | 8  | 18    | 9    | 12 |
| 132. | 26 | 20 | 26 | 24 | 18 | 18    | 19   | 12 |
| 133. | 20 | 16 | 24 | 19 | 16 | 20    | 10   | 22 |



|      |    |    |    |    |    |    |    |    |
|------|----|----|----|----|----|----|----|----|
| 134. | 24 | 26 | 28 | 20 | 22 | 15 | 20 | 13 |
| 135. | 12 | 16 | 17 | 18 | 17 | 14 | 14 | 10 |
| 136. | 24 | 18 | 23 | 20 | 20 | 12 | 8  | 6  |
| 137. | 26 | 18 | 22 | 16 | 14 | 18 | 8  | 26 |
| 138. | 17 | 17 | 21 | 21 | 17 | 13 | 19 | 20 |
| 139. | 24 | 24 | 28 | 19 | 19 | 14 | 6  | 10 |
| 140. | 20 | 16 | 26 | 16 | 14 | 6  | 16 | 13 |

GIRLS LOW GROUP.

|      |     |    |    |    |    |    |    |    |
|------|-----|----|----|----|----|----|----|----|
| 141. | 18  | 12 | 26 | 16 | 12 | 23 | 11 | 10 |
| 142. | 16  | 16 | 22 | 16 | 22 | 20 | 14 | 18 |
| 143. | 12  | 16 | 18 | 20 | 20 | 13 | 19 | 9  |
| 144. | 28. | 20 | 22 | 18 | 18 | 20 | 18 | 16 |
| 145. | 14  | 20 | 30 | 18 | 16 | 10 | 14 | 16 |
| 146. | 20  | 16 | 20 | 12 | 21 | 18 | 10 | 19 |
| 147. | 22  | 22 | 24 | 18 | 22 | 14 | 20 | 18 |
| 148. | 12  | 20 | 26 | 28 | 24 | 22 | 12 | 10 |
| 149. | 13  | 14 | 16 | 13 | 21 | 22 | 24 | 11 |
| 150. | 16  | 12 | 28 | 18 | 16 | 16 | 8  | 4  |
| 151. | 22  | 14 | 24 | 22 | 18 | 14 | 4  | 14 |
| 152. | 17  | 21 | 16 | 18 | 19 | 23 | 14 | 20 |
| 153. | 18  | 22 | 27 | 19 | 21 | 20 | 8  | 8  |
| 154. | 24  | 16 | 24 | 16 | 16 | 16 | 18 | 22 |
| 155. | 25  | 18 | 24 | 14 | 10 | 22 | 14 | 10 |
| 156. | 26  | 18 | 24 | 16 | 16 | 18 | 16 | 18 |
| 157. | 24  | 27 | 24 | 24 | 21 | 17 | 14 | 12 |
| 158. | 22  | 14 | 26 | 18 | 14 | 16 | 14 | 20 |
| 159. | 24  | 16 | 26 | 22 | 16 | 8  | 4  | 8  |
| 160. | 27  | 14 | 22 | 17 | 17 | 16 | 20 | 17 |



|    |    |    |    |    |    |    |    |
|----|----|----|----|----|----|----|----|
| 26 | 24 | 26 | 14 | 18 | 12 | 10 | 17 |
| 24 | 26 | 24 | 24 | 23 | 15 | 14 | 13 |
| 12 | 18 | 22 | 20 | 20 | 22 | 22 | 19 |
| 16 | 22 | 21 | 15 | 14 | 18 | 16 | 12 |
| 16 | 20 | 24 | 24 | 24 | 18 | 22 | 22 |
| 14 | 12 | 20 | 10 | 18 | 13 | 16 | 10 |
| 23 | 16 | 18 | 14 | 16 | 12 | 14 | 10 |
| 26 | 16 | 26 | 12 | 19 | 20 | 14 | 8  |

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referred to in the Appendix-D Column No.2.